

## LITERATURE OF MANUFACTURERS

Catalogues, bulletins and other direct advertising material recently issued.

Manufacturers are requested to send copies of new trade literature promptly to Electric Refrigeration News.

### Acorn

Acorn restaurant coolers and soda fountains, manufactured by Acorn Opal-Metal Specialties Co., Inc., 1052-1054 W. Monroe St., Chicago, Ill., are illustrated in a four-page folder issued recently. Trimmings of all Acorn coolers and soda fountains are 18 per cent nickel silver. Two- and three-inch sheet corkboard is used for insulation, and all hardware is brass nickel-plated.

### Bright

George B. Bright Co., 2615 Twelfth St., Detroit, Mich., has published literature describing its consulting service on refrigerator design and construction. This service includes periodic factory visits for consultation, general supervision of factory development, testing and experimental work, and calibration tests at the company's laboratory for the determination of performance ratings of refrigerators and development of complete test records for use in educational and sales promotional work.

### International Carbonator

An instantaneous carbonator, especially designed to be installed in the cooling compartment of soda fountains and root beer barrels, is described in a small folder issued by International Carbonator Corp., 3285-3287 Casitas Ave., Los Angeles, Calif. The carbonator is connected to the outlet of the cooling coils, and directly to the draft arm. This permits the water to be chilled before being carbonated.

### McCray

Display cases, available in either 8-, 10- or 12-foot lengths, are described in a large folder of McCray Refrigerator Sales Corp., Kendallville, Ind. The front and top of the cases are provided with three courses of plate glass. Wood parts of exteriors are quarter-sawn oak, finished light. White porcelain panels are used in front and on top of the coil spaces at the end of the cases. Interior is of white refrigerator enamel.

### Tork

Windless Tork clock switches, for turning electric lights on and off at set times, are described in a folder issued by Tork Clocks, Inc., 12 E. 41st St., New York, N. Y. The Tork clock windless movement, which operates the switch, is furnished for 110 or 220 volts DC, and 110 or 220 volts AC, 25, 40, 50 or 60 cycles.

### Victor

Victor Gasket Guide No. 6, published by Victor Mfg. & Gasket Co., Chicago, Ill., describes a list of gaskets manufactured for use with different motor models. Victor gaskets are made of pure copper and light quality asbestos millboard.

## NON-CORROSIVE PUMPS MADE BY OBERDORFER BRASS COMPANY

Oberdorfer pumps, which are made of non-corrosive bronze, are adapted to the handling of calcium, sodium brine or water. They are used in industrial, dairy and water-cooling refrigerating installations. The motor driven gear type rotary pump has both pressure and suction ability, and is available in three sizes, with capacities up to 423 gallons per hour. Oberdorfer pumps are made by M. L. Oberdorfer Brass Co., 2309 Thompson Rd., Syracuse, N. Y.

## Refrigeration Takes Part in Centennial



Float of the Murray Co., Honesdale, Pa., decorated for parade in the Centennial held there.

## REQUESTS FOR INFORMATION

Readers who can assist in furnishing correct answers to inquiries, or who can supply additional information, are invited to address Electric Refrigeration News, referring to the query number.

(See additional queries on Page 12)

### Multiple Systems

Query No. 327—"Can you advise us of any municipalities where the multiple refrigeration system is no longer permitted? Also, do you know of any cities that have forced owners of apartments to take such systems out?"

Answer—New York City ordinance No. 1303 prohibits the use of multiple systems, above the first floor, in residential buildings. Part b, section 219, article 18 of the ordinance, reads as follows:

"The direct method of refrigeration shall not be used in any building, whether or not a permit is required for installation therein, outside of the refrigerating machinery room, except in buildings used exclusively for ice making or for refrigerating purposes, or both; when not carried above the first floor in business buildings; in the business sections of business buildings, provided the entire system is confined to one floor in the space occupied by a single tenant; in the business section of a residence building when not carried above the first floor; in a residence building occupied by not more than two families; or in any building provided a non-irritant and non-flammable refrigerant is used."

Answer to second question: No.

### Types of Seals

Query No. 329—"Can you furnish a list of electric refrigerator manufacturers that are using the bellows or diaphragm type of shaft seal?"

Answer—See pages 21-23 of the December 18, 1929, issue of the News for a special directory of manufacturers of complete refrigeration systems, with specifications, including the type of shaft seal used in each machine. The Annual Catalog and Directory number of the News, January 1, 1930, also contains this information.

### Porcelain Panels

Query No. 330—"Can you send us in-

formation showing where we can purchase porcelain panels or porcelain on steel, sizes approximately 31½" x 96" and 31½" x 32"?"

### A. S. R. E. Membership

Query No. 331—"As a subscriber to ELECTRIC REFRIGERATION NEWS, I am writing to you about becoming a member of the American Society of Refrigerating Engineers, and would like to know just how to go about it."

Answer—Write to David L. Fiske, secretary, American Society of Refrigerating Engineers, 37 West 39th St., New York, N. Y., for information and application blanks.

### Distributor's Franchise

Query No. 332—"I have an inquiry from a very reliable person interested in securing a distributor's franchise for an oil burning refrigerator. The Perfection product has been suggested."

"Please forward this inquiry to all manufacturers of this type of unit. A list of these manufacturers, including addresses and trade names, will be appreciated."

Answer—Perfection Stove Co., 7609 Platt Ave., Cleveland, Ohio, makes the Superflex refrigerator, which is a semi-automatic, kerosene burning absorption type unit. Crosley Radio Corp., 3401 Colerain Ave., Cincinnati, Ohio, manufactures the Icyball refrigerator, a non-automatic, ammonia absorption type unit, in which the refrigeration cycle is actuated by heat.

### Quick Freezing

Query No. 333—"Will you please send us whatever literature you may have available for distribution on the subject of 'Quick Freezing' or 'Sharp Freezing,' relating to meats and vegetables?"

"We have noticed quite a number of articles in your paper and thought you may have available some reprints or documents on this subject."

### Flexible Couplings

Query No. 334—"We would appreciate it greatly if you could secure for us a list of manufacturers of flexible couplings on refrigeration machines."

### Royal Refrigerators

Query No. 335—"We are very interested in knowing whether or not the name 'Royal' has ever been used as a trade name for any line of refrigerators."

Answer—A. J. Deer Co., Hornell, N. Y., makes complete refrigeration systems under the trade name "Royal."

### Oil Burning Refrigerator

Query No. 336—"We have an inquiry from the jobber handling our line in North Africa, asking for the names of manufacturers of refrigerators to burn oil instead of the electric type."

Answer—See Query No. 332.

### Refrigerating Units

Query No. 337—"A reader in New Zealand writes: 'I would be glad if you could put us in touch with any reliable makers of freezing units for automatic mechanical ice cream cabinet.'"

"We are users of a number of these cabinets complete, but owing to excessive freight and duty the landed cost absolutely precludes their use except in the case of large users. The only solution seems to be to import the units and build our cabinets here, and it is with this in view that we ask your co-operation."

"Perhaps the better plan would be to ask a few leading makers to write us, giving particulars of their lines, and if possible a sketch of a suitable cabinet to obtain the highest efficiency from the units they would supply. In the case of motor-driven units, it would be necessary to point out that motors would require to be wound for our voltage here, which is 230 volts."

"In view of the dangerous nature of sulphur dioxide (SO<sub>2</sub>), we would prefer not to handle plants using that chemical."

"Should a suitable unit be forthcoming, we would use quite a number ourselves, and if satisfactory could place quite a quantity with other ice cream manufacturers throughout New Zealand."

"As it would take some time to evolve a type of cabinet to suit New Zealand conditions, it might be possible for prospective clients to send a trial unit without further reference to us, provided a sketch of a suitable cabinet is sent. It would be best sent via Frisco per the passenger service from that port to New Zealand, as it would mean an extra month's delay via New York."

"Shipper could draw on us at sight through the Bank of New Zealand, and if they require any reference we name the Company."

"We are more interested in units for small cabinets, with 2 to 6 holes, each to hold 5 gallons Imperial Measure."

"I would like to see more news about the general education of public on food preservation."—Philip H. Harrison & Co., 69 Central Ave., Newark, N. J.

## THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance—Positions Wanted—fifty words or less, one insertion \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion \$3.00, additional words six cents each. Three insertions \$8.00, additional words sixteen cents each.

### POSITIONS AVAILABLE

WANTED—Experienced Refrigeration salesmen, 4 household and 2 commercial. Account of warm climate and tourist business this is our best sales season. Address W. H. Forgy, Sales Manager, 107 E. Lafayette Street, Tampa, Florida.

### POSITIONS WANTED

SEVEN years' experience, service man, service manager, commercial sales engineer and assistant to sales manager of national company. Thoroughly understands several units and qualified in dry expansion Larkin coils. Willing worker who will appreciate an opening where future is possible. Will be available April first or before. Eastern location preferred. Box 227.

SERVICE MANAGER desires position in eastern part of country, preferably northeast, as service manager. Six years' experience; the last two on General Electric line. Good reference. Now employed. Available February 1 or later. Box 226.

EXPERIENCED REFRIGERATION ENGINEER—Desires to get in touch with refrigeration manufacturer requiring the services of a chief engineer. Thoroughly versed in engineering, design and production methods. More than ten years' experience in electric refrigeration. Will consider any locality—Detroit or vicinity preferred. Address Box No. 217.

ENGINEER AVAILABLE—There is available for immediate employment a refrigeration engineer of long experience in the industry. He wishes to communicate with manufacturers in any part of the country desirous of adding to their staff a thoroughly capable man. His experience, extending over a period of ten years, embraces design, development and production work. Complete information will be furnished upon request. Box No. 228.

### MISCELLANEOUS

FOR SALE—50 Colonial (with lids) and 50 United (without lids) 5-foot cabinets, 2" cork lined, Duco finish, all white. All new, good condition, will accept any reasonable offer for entire lot. Box 221.

FOR SALE—We offer an entire lot of twenty-five factory tested and sealed Iroquois electric refrigerating machines at a special low price. If interested write for further information. Box 223.

FOR SALE—Complete stock of electric refrigerators, including finished cabinets, cooling units with trays, electric motors, compressors and fittings. Will sell the complete stock or any part thereof. Address P. O. Box 391, Mt. Vernon, Ohio.

## WHAT THE PUBLIC THINKS

A SIGNIFICANT commentary on the value placed by the public on electric refrigeration is furnished by the fact that the Utah Power and Light Company is continually being called up by persons looking for quarters to be rented who wish to be furnished with a list of houses and apartments which are provided with electrical refrigeration. What landlord with vacant premises on his hands could overlook the admonition of this straw, pointing the direction of the public's taste?—Electrical Merchandising.



## Electrical Refrigeration Efficiency is assured with---

## Wirfs PATENTED "AIRTITE" GASKET

An electrical unit is only as efficient as the box in which it is installed. Poor door contacts on wood or metal boxes hinder its efficiency and increase operating costs.

WIRFS CORPORATION  
135 S. 17th St. St. Louis, Mo.

## Subscription Order

ELECTRIC REFRIGERATION NEWS  
550 MACCABEES BUILDING, DETROIT, MICH.

Please enter subscription to Electric Refrigeration News.

United States and Possessions:

☐ \$2.00 per year. ☐ Three years for \$5.00

All other Countries:

☐ \$2.25 per year. ☐ Two years for \$4.00

I am enclosing payment in the form of

☐ Check ☐ P. O. Order ☐ Cash

Name

Street Address

City and State

Remarks:

## Fulco

### REFRIGERATOR COVERS

"FULCO" covers are used by those dealers who realize the importance of making deliveries in perfect condition—without scratches or broken enamel. For they know that complaints mean dissatisfied customers and loss of business.

"FULCO" covers are a real service feature that helps sales and holds trade.

Substantially constructed, heavily padded, box-shaped, providing perfect protection.

Give us the dimensions of your refrigerators, and let us quote special prices on your individual needs. Write our nearest house.

### Fulton Bag & Cotton Mills

Manufacturers Since 1870  
ATLANTA · NEW ORLEANS · DALLAS · ST. LOUIS  
MINNEAPOLIS · BROOKLYN · KAN. CITY · KAN.

ON AND OFF IN A JIFFY



# ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office.

The business newspaper of the refrigeration industry

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TWO DOLLARS PER YEAR

## HYDRATOR ON VIEW AS LEADING FEATURE OF 1930 FRIGIDAIRE

First Shown At Sales Convention  
in Atlanta

Dayton, Ohio.—A moisture-laden vegetable storage compartment, in which vegetables remain crisp and fresh indefinitely, is the outstanding feature of household electric refrigeration now being displayed to the field organization of Frigidaire Corporation at its series of thirteen 1930 regional conventions.

This newest General Motors development in the refrigeration field is being presented to salesmen and the public as "the hydrator." The Frigidaire organization is of the opinion that it will prove of importance equal to its popular "cold control" in meeting the requirements of the housewife.

Arrangements have been made to provide all present household users with this improvement at a nominal price, following the policy adopted last year for the "cold control."

In tests conducted in the factory experimental kitchens, this vegetable storage compartment has not only kept vegetables crisp and fresh for a long period, but has actually restored wilted celery, endive and parsley to its original fresh-from-the-garden appearance, in the space of five hours.

### Salesmen Welcome New Line

Five hundred dealers and salesmen in attendance at the curtain raising Atlanta convention on January 21 gave enthusiastic welcome to new products which were presented. Announcement that there are now 1,300,000 users of Frigidaire precipitated a thunderous demonstration.

Ten thousand salesmen and dealers attending these conventions will also view the recently announced commercial refrigerator boxes, a new water cooler, a three-quarter horsepower water-cooled compressor, and one horsepower air-cooled compressor. All Frigidaire household models and commercial storage boxes are now finished in porcelain-on-steel, inside and out.

Headed by J. A. Harlan, sales manager, the 1930 Frigidaire regional convention party, consisting of twenty-one factory representatives, is holding one-day meetings in each of the following cities: Atlanta, Roanoke, Philadelphia, New York, Boston, Buffalo, Detroit, Chicago, Memphis, Dallas, Kansas City and San Francisco. Two meetings will be held in Chicago. Canadian salesmen will attend the Buffalo convention.

Mrs. Elizabeth Stone Macdonald, formerly head of the department of home economics of Boston University, who became a member of the Frigidaire organization this year, presents the hydrator and explains its advantages in one of the most impressive acts on the convention program.

Sound pictures, presenting E. G. Blechler, president and general manager; T. B. Fordham, works manager, and other factory officials, are being used. R. F. Callaway, manager of branches, discusses selling of electric refrigeration now in contrast with such selling eight years ago. E. D. Doty, advertising manager, presents the 1930 advertising program.

J. J. Pocock, distributor of Frigidaire products for the Philadelphia district, will speak for the field organization during the first half of the convention swing, and H. A. Malcom, general manager for the Stover Company, distributors for the Chicago district, will take this part of the program on the latter part of the trip.

Others on the program include: R. L. Lee and J. J. Nance, of the sales promotion department; H. F. Lehman, service manager; G. E. Durban, national users department; R. B. Ambrose, zone manager, and E. Gilbert, of the sales education department.

### Restores Wilted Vegetables

In one of a wide variety of hydrator tests made in the Frigidaire experimental kitchens, a bunch of celery, before it was placed in the moist air compartment, presented a sorry appearance. Together with other vegetables, it had been deliberately left to wilt in a hot, stuffy room. Twenty-four hours in the moist, reviving cold of the hydrator, however, served to restore it to its original fresh appearance.

This was an extreme test, according to those who conducted it. Vegetables as wilted as the celery would never be

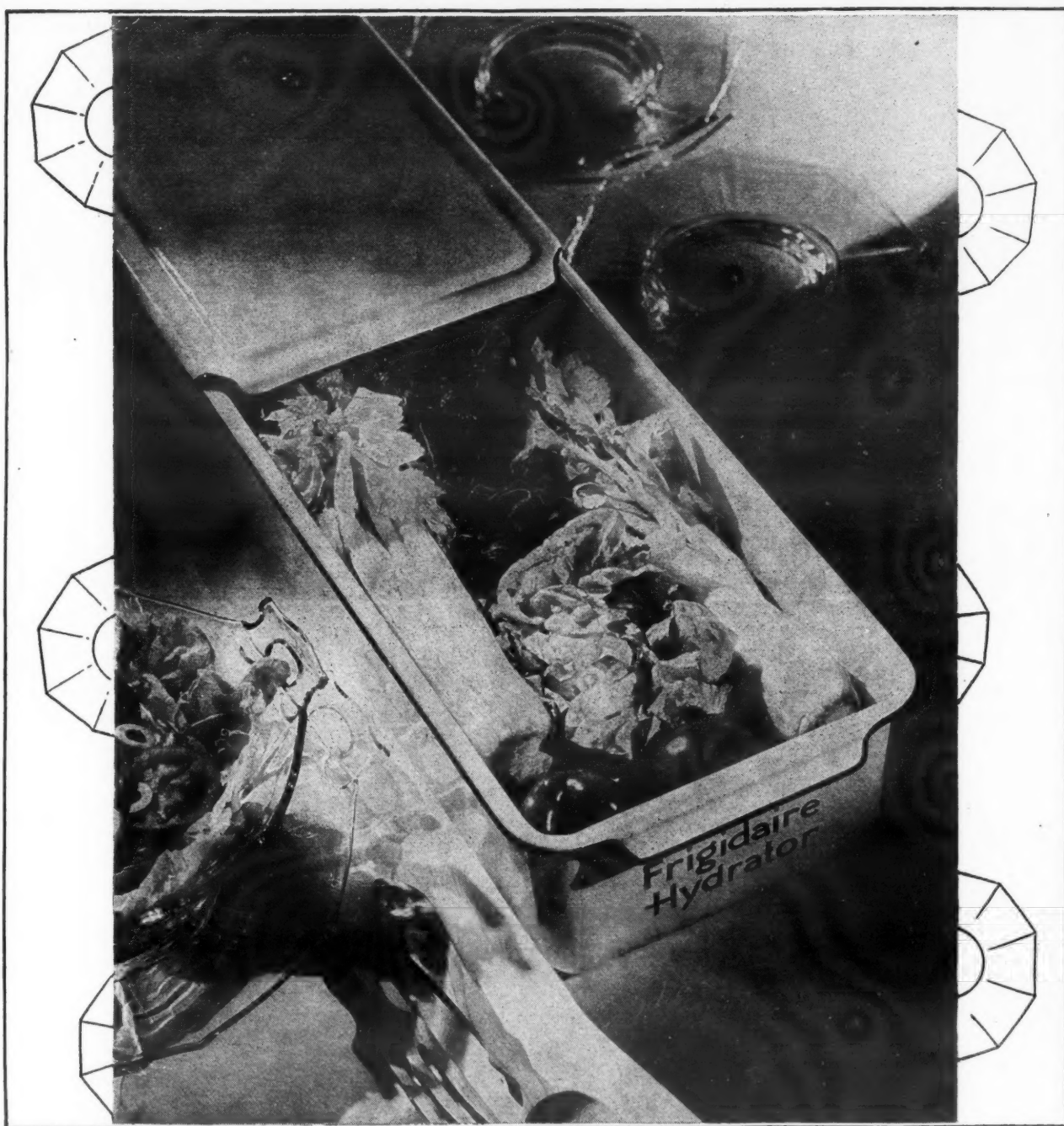
(Concluded on Page 2, Column 4)

## Grigsby-Grunow to Make Refrigerators

### Producers of Majestic Radio Enter Field

Chicago, Ill.—Wm. C. Grunow, vice-president and treasurer of Grigsby-Grunow Company, in charge of production, has announced that this concern, the largest manufacturers of complete radio sets in the world, under the trade name "Majestic," will shortly enter the field of electric refrigeration. Mr. Grunow stated that the company was not prepared to give out any details at this time regarding its new product.

## Moisture-Laden Storage for Vegetables



## WESTINGHOUSE OFFICIALS SEE PRODUCTION BEGIN

Mansfield, Ohio.—In the presence of several officials of the Refrigeration Division of the Westinghouse Electric and Manufacturing Company, the first production unit of the new Westinghouse refrigerator was ceremonially charged with its requisite content of oil and sulphur dioxide. As announced in the January issue of ELECTRIC REFRIGERATION NEWS, these refrigerators will be introduced to the market on February 1.

Westinghouse engineers have designed a unique and efficient charging stand, which is set up at the Ohio plant here. It will be manned by only two workmen, each placed on one side of the stand. They will charge each unit with one pound of sulphur dioxide and one pint of oil at the same time. The machine will charge a unit completely in five minutes.

Many refinements have been designed as a part of the charging stand. A spare vacuum pump insures a steady run-through of the units. The machine insures absolute dryness of the sulphur dioxide. This is important, as otherwise moisture would combine with the compound to form sulphuric acid, and thus corrode the mechanism of the unit.

(Concluded on Page 10, Column 5)

## Two Manufacturers Report Earnings

Detroit, Mich.—The stockholders of the Kelvinator Corporation met at the executive offices in Detroit on Monday, January 20, and reflected the present board of directors, consisting of J. S. Bache, of J. S. Bache & Co., New York City; P. J. Ebbott, Equitable Trust Co., New York City; F. C. Finkenstaedt, Bay City, Mich.; A. H. Goss, Detroit; J. M. Hoyt, Prince & Whitely, New York City; D. B. Lee, Motor Products Corporation, Detroit; George W. Mason, president of the Kelvinator Corp., Detroit; H. T. Pierpont, Worcester, Mass.; Ernest Stauffen, Jr., Marine Trust Co., New York City, and Merlin Wiley, Detroit.

Reports for the fiscal year ending September 30, 1929, indicated a substantial gain over last year's figures—\$1,221,383.73.

Kelvinator Corporation reports a net loss of \$87,000 for the first quarter of its current fiscal year, covering the months of October, November and December, 1929. This compares with a net loss for the same quarter of 1928 of \$413,000.

Following the stockholders' meeting there was a session of the board of directors. No change was made in the officers of the corporation. The officers are: George W. Mason, president; H. G. Perkins, assistant to the president; H. A. Lewis, treasurer, and H. W. Burritt, vice-president in charge of sales.

suits from operations for the quarter just ended showed a loss of \$87,000, it should be borne in mind that the last quarter of any calendar year has always been the period of lowest volume in this industry, and customarily shows a loss.

Mt. Clemens, Mich.—Copeland Products, Inc., manufacturers of electric refrigeration, earned net profits of \$209,006.79 for the fiscal year ending October 31, 1929, William Robt. Wilson, chairman of the board, told over five hundred distributors and dealers at their fifth annual convention in Detroit. With 101,991 shares of "A" stock outstanding on that date this is equivalent to \$2.05 a share. These figures represent a 10-month period due to a change in the fiscal year which now ends October 31, instead of December 31, as formerly.

Figures for 1929 represent an increase over those of 1928 when a profit for the fiscal year ending December 31 was announced as \$201,694.67.

Mr. Wilson predicted increasing business for 1930, characterizing the late stock market crash as a "successful calamity" which was serving to bring business back to normal and effect a better ratio between earnings and stock prices.

## WATER COOLING

THIS issue, featuring the latest developments in the water cooling field, contains a wide variety of material pertaining to the many uses and applications in this division of the electric refrigeration industry.

New models are illustrated on Pages 22-23. The market is discussed on Page 16, while installations indicating the wide possibilities in this field are pictured on Pages 17-18-19-24 and 25. Technical data on water cooler installations is given on Pages 20-21 and 26.

## COPELAND PREPARES FOR FIRST SHOWING OF LATEST MODELS

Production Gets Under Way At  
Mt. Clemens Factory

Detroit, Mich.—Copeland's new line of electric refrigeration was shown to the company's distributors and dealers at the company's fifth annual convention here January 13-14, and pronounced by them to be one which will create a stir when it is released to the trade next month.

New features designed to assist the housewife greatly in her daily work which were developed through co-operation with domestic science experts, are incorporated in the line. Copeland engineers, in the designing of this new line, have incorporated into it safety and automatic devices.

Another change in the Copeland line is the use of new cabinets and the shipping of the cabinet and unit together all ready for installation, a feature which was hailed with enthusiasm when it was explained by W. D. McElhinny, vice-president, at the convention in Detroit. Under this arrangement, the boxes are shipped directly to Mt. Clemens, the units installed at the factory, where the entire refrigerator, box and all, undergo a thorough test. All that is necessary for the distributor or dealer to do is to fill with refrigerant and connect to the lighting circuit.

The new line, exhibited at the Play-ers' Club, where the convention was held, was enthusiastically received by the 500 distributors and dealers present. Large orders were placed. Models were shown on the stage, giving the dealer organization a complete view of what the factory characterizes as the greatest line Copeland has ever produced.

The Copeland line, it also became known, will include de luxe models with interchangeable colored tops, and ranging from 6.6 cubic feet food capacity to more than 15 cubic feet; an all-porcelain line ranging from 4½ cubic feet capacity up to 6.6 cubic feet, and a pop-

(Continued on Page 4, Column 3)

## NEW CODE PROPOSED FOR DISTRICT OF COLUMBIA

Washington, D. C.—High points of the proposed amendment to the Gas Fitting Regulations of the District of Columbia and a Mechanical Refrigeration Construction Code drafted by a committee on January 13, 1930, are the regulations of remote direct refrigeration systems of Class "C" and "D" (except in buildings for commercial or industrial purposes, or combination business and residence buildings, hotels or apartment buildings, where the system is confined to first floor and basement or top floor and roof), to provide that the entire refrigerant primary system of pipe or tubing, valves and fittings shall be fully enclosed in a gas-tight casing; and the addition of a warning agent to an irritant refrigerant, which is not readily apparent to a human sense, in systems where the amount used is in excess of five pounds.

A public hearing on the adoption of this amendment and code will be held in the Board Room, District Bldg., Washington, D. C., at 10 a. m. Monday, February 10, 1930.

Article 506 (a) of the proposed code pertaining to Class "C" systems (a system containing twenty pounds or more of refrigerant, but less than one hundred pounds), and Class "D" systems (a system containing more than five pounds of refrigerant but less than twenty pounds), states that "All refrigerant lines shall be enclosed in a secondary or protective system consisting of standard weight brass, iron or steel pipe, not less than 1¼" in diameter, cast recessed drainage fittings and cast metal junction and valve boxes, so that the entire refrigerant primary system of pipe or tubing, valves and fittings shall be fully enclosed in a gas-tight casing.

Article 506 (b) provides that "All changes in direction shall be made with junction boxes or long turn pattern fittings, and all connections shall be made by standard thread full screwed joints. The secondary system shall be continuous from a point within five feet of pressure imposing element to and including connection in each evaporator."

Secondary systems having connections on two or more floors according to Article 506 (c) "shall be extended above the main roof of the building and there provided with a return bend or other

(Concluded on Page 2, Column 4)



# KELVINATOR

## Offers Complete Coverage of Industrial Field with Line of 26 WATER COOLERS

**KELVINATOR** dealers hold an enviable position in the electric refrigeration industry with a line of water coolers that completely covers the industrial field. There are Kelvinator-equipped Water Coolers for office buildings, factories, clubs, restaurants, hospitals, schools, theaters and banks. No Kelvinator dealer need pass up a profit opportunity for lack of proper equipment.

People are beginning to realize more fully the need for an abundant supply of properly cooled drinking water the year 'round. Doctors and health authorities everywhere are emphasizing this need. The water

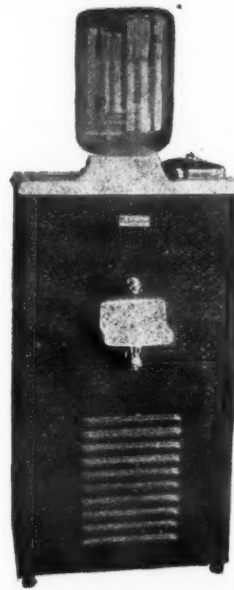


Model Y-20 Kelvinator pressure type water cooler

cooler field is potentially one of the richest markets offered the refrigeration dealer.

The 26 Kelvinator-equipped Water Coolers represent, unquestionably, the most efficient and perfected line of water

cooling equipment on the market. Steel cabinets, porcelain enameled tops, sanitary mound-building projectors, direct cooling system giving maximum amount of properly cooled water for peak loads, and the rugged, efficient Kelvinator Condensing Unit all combine to make the Kelvinator line unequalled in its field.



Model Y-10 Kelvinator bottle type water cooler with special storage compartment for sandwiches, bottles, etc.

### Outstanding Advantages of KELVINATOR Industrial Water Coolers

- 1 Direct Cooling System gives instantaneous cooling, through ingenious arrangement of water and refrigerant tubes. No damage can result to system from freezing.
- 2 The system is entirely closed and dry which makes for sanitation.
- 3 The storage tank insures a full drinking stream at uniform temperature.
- 4 Thermostatic control insures starting and stopping only when there is a temperature change.

- 5 Storage tank feature takes care of peak demands, insuring an abundant supply of properly cooled drinking water at all times.
- 6 More cool water per dollar invested.
- 7 Recognized by leading engineers as the ultimate cooler.
- 8 Practical, sanitary 2-stream mound-building projector.

This outstanding line of water coolers is just one of the reasons why the Kelvinator franchise has proved itself without an equal among refrigeration dealers. Limited dealer territory still exists in some locations. Write for details of Kelvinator's selling plan and literature describing the complete Kelvinator line.

KELVINATOR SALES CORPORATION, DETROIT, MICHIGAN  
KELVINATOR OF CANADA, LTD., LONDON, ONT.  
KELVINATOR, LIMITED, LONDON, ENG.

## WASHINGTON CODE

(Continued from Page 1, Column 5)

suitable fitting for ventilation purposes, or connected into a similar ventilation pipe so extended. The end nearest the pressure imposing element shall be securely sealed and provided with an approved air pump connection, so that the entire secondary system may be tested under air pressure at any time by closing roof ventilation and attaching pump."

Article 506 (d) reads: "Every evaporating unit or any part thereof in contact with refrigerant shall be constructed of cast metal, or heavy drawn or die cast metal sufficiently rugged to turn the end of an ice pick without injury to the unit, or shall be completely encased in and protected by a casing or shield so constructed."

According to Article 506 (e), "All pipes, junction or valve boxes, fittings, refrigerators or other parts of the system shall be permanently secured in place."

A stop valve, Article 506 (f) states, "Must be placed in each high or low pressure line, and shall have attached thereto a hand wheel or other ready means of operation. Stop valves shall be located near the pressure imposing element, and in each service outlet box."

Article 506 (g): "Not more than a single tenant shall be supplied from an outlet box which shall be located within the premises of the tenant served, but not within the refrigerated space; and it shall be located so as to be readily accessible at all times."

"A remote system," according to Article 507, "in a building used exclusively for industrial or commercial purposes or a remote system of Class 'C' and 'D' confined to the first floor and/or basement in any combination business and residence building, hotel, apartment house or multiple dwelling, shall be constructed in accordance with Article 503, or may be constructed in accordance with Article 504\*\* and 506 except that roof ventilation of secondary or protective system will not be required."

\*Article 503: "All refrigerant lines of Class 'A' and 'B' systems shall be of standard weight steel, iron or brass pipe for refrigerants requiring test pressures of 150 pounds or less, and of extra heavy weight steel, iron or brass pipe for refrigerants requiring test pressures of over 150 pounds."

"Article 504: "All refrigerant lines of Class 'C,' 'D' and 'E' systems shall be as provided in paragraph 503, except that new seamless copper or other suitable new metal tubing of not less than 0.034 inch wall thickness for diameters not exceeding 5/8 inch, and of corresponding greater wall thickness for larger diameters, may be used, provided all joints are sweated, brazed, or provided with an approved union flared joint."

Systems containing over twelve pounds of refrigerant, which are assembled and piped in place, shall be tested by the installer in the presence of the Inspector of Plumbing. These tests shall include a vacuum and a pressure test. Every secondary or protective system shall be tested on completion and annually thereafter by temporarily sealing the ventilation opening at the roof, attaching gauge and determining that the contained pressure is not being augmented by leaks in the refrigerant carrying system. If no increase in pressure is noted, then a pump shall be attached and a pressure of 4 inches of mercury shall be applied and maintained for ten minutes without appreciable diminution. In case of leak, repairs shall be made

and the test again applied until system is proven tight."

Article 615 on refrigerants states: "An irritant refrigerant which is not readily apparent to a human sense shall have a substance added thereto to make it so apparent, where the amount used in a system is in excess of five pounds." The definition of an irritant refrigerant in Section 200 of the proposed code is (Continued on Page 11, Column 2)

## FRIGIDAIRE'S HYDRATOR

(Concluded from Page 1, Column 1)

placed on sale, much less considered by a buyer. Among other vegetables that received the same harsh treatment preliminary to the experiment were parsley and lettuce, and these were restored equally as well as the celery. Then, by means of the moist air container, the vegetables were held without change in appearance for a week.

The hydrator, these and other tests demonstrated, is capable of keeping vegetables crisp and fresh for indefinite periods, as well as restoring them to their original "fresh-from-the-garden" appearance in a short time, if they are wilted.

Reviving and preserving vegetables is not the only advantage of the hydrator, the experiments disclosed. Its moisture-laden cold will keep sandwiches, prepared in the morning by the hostess at her leisure, in their original dainty freshness until served in the afternoon or evening. Thus it solved another problem for the hostess.

Three years of scientific research went into the development of the hydrator, the need for which—that of providing a cold with the proper degree of humidity for certain foods—has long been recognized by electric refrigerator users. Numerous obstacles had to be overcome before this constant, moist, reviving cold could be achieved.

It was found that the location of the compartment within the refrigerator was of prime importance, for upon this factor depend the all-important considerations of proper temperature and circulation within the container. Also, the shape of the hydrator and its height, width and depth had to be scientifically determined, for upon the correctness of these depend its proper functioning. Money and time were spent in the development of the device in order to achieve a perfect balance between moisture and preservation.

As in all Frigidaire household cabinets, porcelain-on-steel is used in the construction of the hydrator, inside and out. As a consequence, the device is rust-proof and sanitary. It can readily be removed from the cabinet, making cleaning an easy task.

The hydrator is built in two sizes for household models. For the larger models there is a compartment with a capacity of approximately 560 cubic inches, and for the smaller sizes, one with a capacity of approximately 410 cubic inches.

In line with the Frigidaire policy of making its improvements available to all present users, the hydrator was so designed that it can be installed at nominal cost in all models now in use.

## IOWA DISTRIBUTOR NAMED BY TRUPAR

Des Moines, Iowa—The Globe Machinery & Supply Co. has been appointed a distributor for the Trupar Mfg. Co., Dayton, Ohio. Office and showrooms will be maintained at 314-321 West Walnut St.

## A Kelvinator Sales Quartet



J. H. Davis G. A. Wilcock B. J. McIntyre C. B. Jones

Detroit, Mich.—The Kelvinator Domestic Sales Department, Vance C. Woodcox, manager, has added four new men to its staff. The men will specialize in various ways to help distributors and dealers increase their sales volume. The new men are:

B. J. McIntyre. Has been with the Detroit distributing organization for four years as head of the Apartment House and Builders' Department. He has been brought into the factory domestic department to specialize on apartment house and builders' work from the national standpoint.

G. A. Wilcock has been three years in electric refrigeration, and has had experience in creating sales manuals, sales equipment and school educational courses. He becomes affiliated with the

domestic department to specialize on sales educational work.

C. B. Jones comes to Detroit from Missouri and Arkansas territory, where he has been with power companies as Kelvinator sales manager during the last four or five years. His duties will be those of school instructor on domestic organization and sales specialist.

J. H. Davis comes from the New York branch, where he has worked on water cooler sales. He has had two years selling electric refrigeration for utility companies, and spent two years in South America in selling work. He will assist in domestic sales work in Georgia, Florida, Alabama and Louisiana.

Mr. Jones left for the southwest, via Grand Rapids, where he inspected the Leonard Refrigerator plant, on Jan. 20.



*If a prospect wants the **DEPENDABLE** electric refrigerator—*  
**TELL HIM THIS\***

*If a prospect wants the **DURABLE** electric refrigerator—*  
**TELL HIM THIS\***

*If a prospect wants the **EFFICIENT** electric refrigerator—*  
**TELL HIM THIS\***

*If a prospect wants the **ECONOMICAL** electric refrigerator—*  
**TELL HIM THIS\***



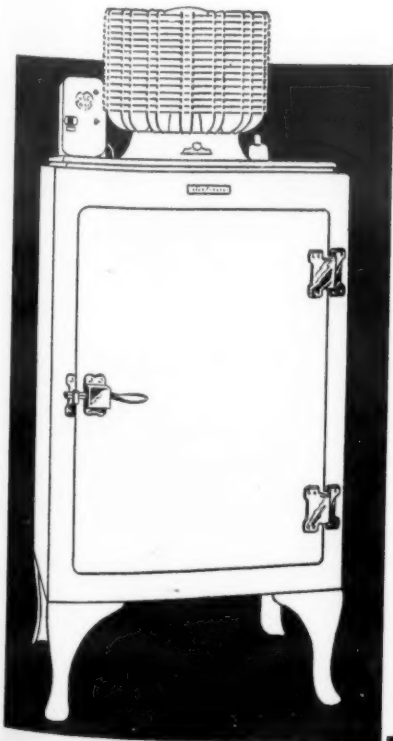
Of the hundreds of  
 thousands of owners of  
**GENERAL ELECTRIC REFRIGERATORS**

not

**One**

has

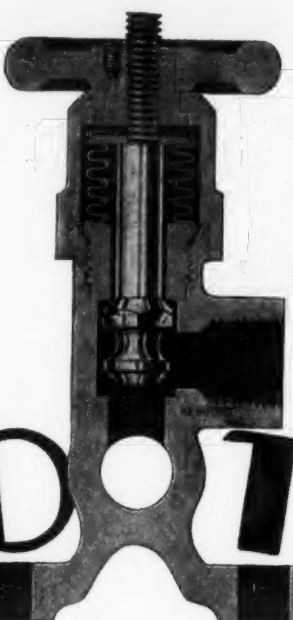
paid a cent for **SERVICE!**



**GENERAL  ELECTRIC**  
**ALL-STEEL REFRIGERATOR**

ELECTRIC REFRIGERATION DEPARTMENT OF GENERAL ELECTRIC COMPANY,  
 HANNA BUILDING, CLEVELAND, OHIO





# KEROTEST

## BELLOWS PACKLESS VALVES

(Patent Applied For)

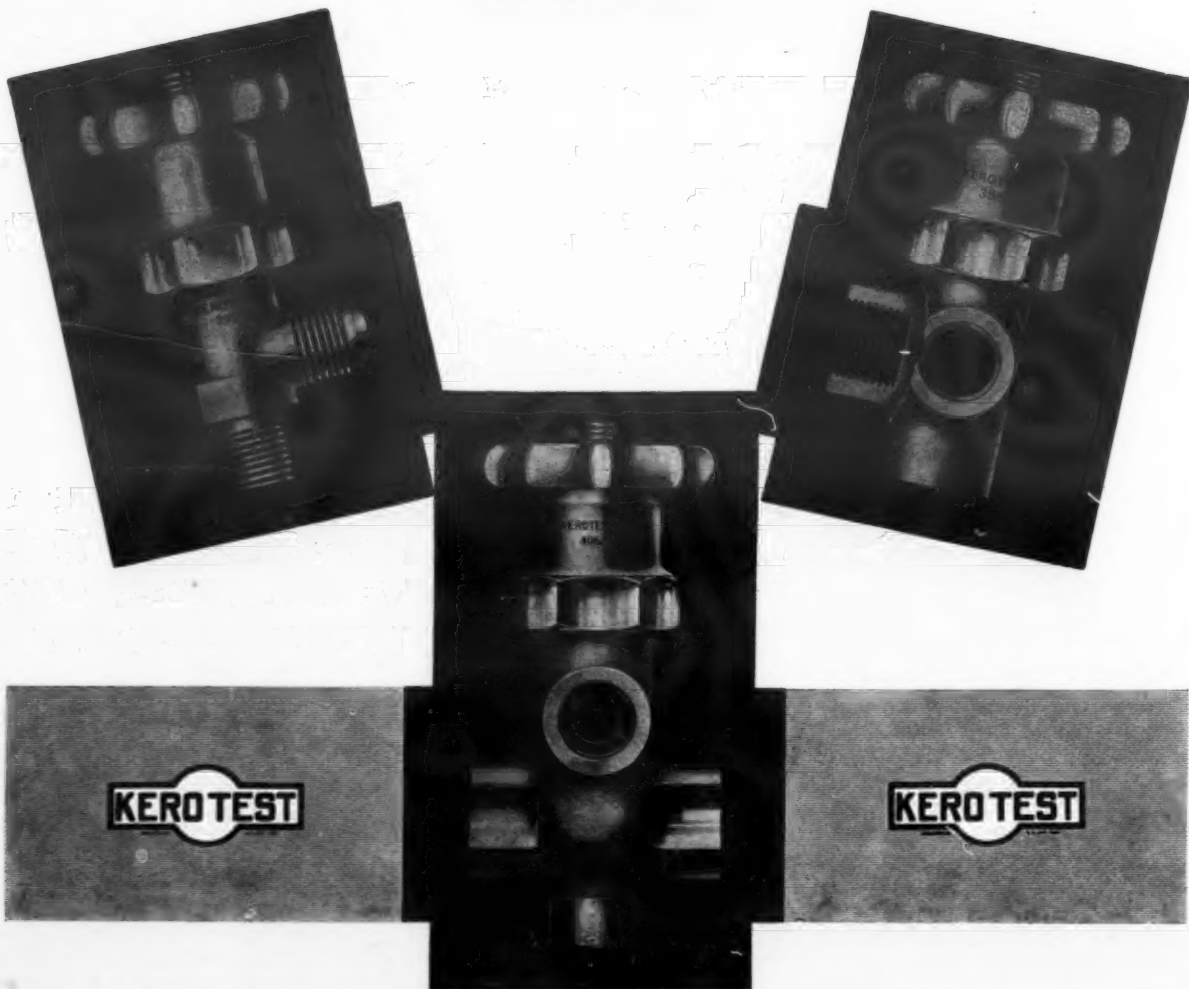
A new line of forged brass packless valves recently perfected by Kerotest for the electric refrigeration industry.

Note these outstanding improvements in design and construction:—

1. Hollow hexagon chamber and hexagon head stem eliminate torsional strain on bellows and soldered joints.
2. Back seating bevel seats on threaded and soldered bushing giving a metal to metal joint when fully opened.
3. Bellows so assembled that they are in normal position when valve is open, eliminating stretch and strain.
4. Number of threads exposed at top indicates distance valve is opened.

Write for complete information and quotations

**KEROTEST**  
**MANUFACTURING CO.**  
PITTSBURGH  
PENNSYLVANIA



### Lindeman Joins Copeland



Greensboro, N. C.—S. O. Lindeman, who, since 1916, has been connected with the Delco Light-Frigidaire organization as distributor in the Carolinas, where he built a business that amounted in volume to close to a million and a half dollars, has relinquished his Frigidaire franchise and will sell Copeland in the Southeastern States. Mr. Lindeman's headquarters will be maintained as before, at Greensboro.

At the annual Copeland Convention held in Detroit on January 13 and 14, Mr. Lindeman was a guest speaker. He began his address by pointing out that the man who puts real effort into his business is bound to show scars as a result of the fighting he is compelled to do in order to succeed. Mr. Lindeman continued:

"A sure way to get scars is to fail to appreciate the strength of your competitors. Too many of us have the habit of magnifying competitor's weak points instead of realizing that competition survives by reason of its strong points.

"The Bible story of the mote and the beam could be well applied to many in the business world. Let's begin these

by acknowledging our own weaknesses and by recognizing the strength of our competitors. In this business of selling electric refrigeration the chief weakness as I see it is the tendency to decry the product and responsibility of the other fellow, instead of selling the thing we ourselves have to sell.

"Salesmen seem to take a great deal of delight in pointing out to prospects the fact that certain users of competitive units are far from satisfied. They discuss noise, refrigerants and mechanics when they should be talking about the value and worth of proper refrigeration.

"Looking ahead a bit, we see a very definite market composed of the boys and girls of today, who will be men and women of tomorrow. Your children and mine are being reared in homes equipped with electric refrigeration. When they marry and set up their own households it is inconceivable that they shall be willing to go back to the old ice box. As soon believe that they will abandon the electric light they are accustomed to and go back to the oil lamp or tallow dip."

### NEW COPELAND LINE

(Continued from Page 1, Column 5)

ularly priced line with the same food storage capacity. All of these models will use a new cabinet with a specially designed rib at the back protecting the wiring and preventing the placing of the cabinet too close to any wall.

An attractive type of hardware is used on these boxes, with a combination bright and satin finished hinge and door-pull for the de luxe type. In the de luxe type also is incorporated the interior light with a warning pilot light and a conveniently placed toggle switch.

In the Copeland line the cabinets are convenient for the housewife, so that she may take out food or put it in without the necessity of bending over. All the operating parts of the machine also have been so placed that there is no need of bending.

Copeland's commercial line also includes several innovations, details of which will be announced later.

When the distributors and dealers were taken to the factory they were shown the new line in the process of manufacture, in the new and entirely modern factory at Mt. Clemens, which the company moved into last fall. Here they were shown the latest methods in production, using the assembly line method, and the well arranged testing benches where the boxes are tested as one unit, all ready for shipment. They were also shown through the completely equipped service school room, where one service school was under way at the time of the convention.

The convention was under the direct charge of Vice-President McElhinny and C. W. Hadden, of the executive staff. Opening the convention sessions, Mr. McElhinny rallied the 500 men representing the dealer organization to bigger things in 1930, when he declared bluntly that Copeland had "cleaned house" at home and called on the men outside to do the same and make 1930 the biggest year yet. "Copeland's new factory," said Mr. McElhinny, "will permit us to do

things we have never been able to do before. We have cleaned house; we have set it in order. We have abandoned the old house and gone to a new one. And so now let's go out and make 1930 a record year." With this he then introduced William Robert Wilson, chairman of the board.

"We again have made substantial progress in volume and profits," Mr. Wilson said. "Foreign and domestic sales have kept apace, both showing increases of which we are proud. But, with this business expansion and the taking over of the new plant at Mt. Clemens, you can readily understand that we have put these earnings back into the business instead of paying a dividend. It is money well invested.

"Electric refrigeration has become a sounder and bigger industry and is growing steadily. It is a business which need have no fears for the future. It is a business which the recent financial slump need have little effect upon.

"The recent financial crisis has made us better business men, for we have learned a few things during the winter. But in spite of all this, business has not been bad, for figures show that the retail business during the holidays was better even than it was the preceding year. Mail order houses are looking forward this year to increasing business, growing better every quarter, steadily increasing throughout the year.

"All in all, we can look at the recent stock market crash as a successful calamity, teaching business a few things and getting business back to a more normal state. We are getting more and more back, all of which means men are taking more and more interest in their homes, in the equipment with which their wives operate their homes. And this means better business for the electric refrigeration industry."

President Louis Ruthenburg met the distributor and dealer organization for the first time and received a big ovation as he was introduced by Vice-President McElhinny. Expressing pleasure at meeting the men who are "pushing Copeland in the field," Mr. Ruthenburg de-

(Concluded on Page 25, Column 1)



# McCRAY Presents

## A New Display Case Exclusively For Machine Refrigeration

### A BUSINESS OPPORTUNITY » » »

McCray offers a wonderful opportunity to salesmen and distributors who can see the profit possibilities in this complete line of high quality refrigerators for every commercial use. McCray leadership is based on 40 years of QUALITY manufacture. A few definite openings are now available. Write for details.

**E**XCLUSIVELY for machine refrigeration of any type and to meet present day demands for striking display coupled with maximum utility and efficiency, the new No. 3108 Heavy Duty Refrigerator Display Case has been created by McCray.

The No. 3108 Case embodies new and unusual features of design, and is a superior contribution to up-to-date refrigerator equipment. Its staunch 6-inch walls are insulated with 4 inches pure corkboard sealed with hydrolene. A display front and top of three courses plate glass permit unobstructed vision. Snow white enamel interior. Quarter-sawn oak exterior with white porcelain panels in front and on top. Handsome base of 9-inch olive porcelain.

Typically McCray in sound construction, splendid appointments, finished craftsmanship, this very practical case provides needed equipment for food merchants everywhere, who have learned through experience to depend on McCray for profit-building service.

Dealers in mechanical refrigeration know that the efficient working of their machine depends upon the refrigerator itself. With the installation of their units into a McCray they are assured of certain, permanent service. In the new No. 3108 Case, coil spaces at either end provide for any type machine.

McCray builds refrigerators for every need and purpose, both stock and order models. Write for catalogs and information. No obligation to you, of course.

**McCRAY REFRIGERATOR SALES CORPORATION**

Dept. 66, Kendallville, Indiana

SALESROOMS IN ALL PRINCIPAL CITIES (See Telephone Directory)



Shown above is a front view of the new No. 3108 Heavy Duty Refrigerator Display Case. Note the beauty of the case, combined with the practical construction—three courses of plate glass in front and on top, snow white enamel interior; rich oak exterior, porcelain panels, olive porcelain base. A mark of distinction for any store!



In the rear view, shown above, may be seen the four large storage doors which give ready access to contents, speed up service and sales. Coil spaces at each end available by plug doors shown. Heavy metal bar shelf. Metal floor rack. Measurements of the No. 3108 are 8' x 36" x 44". Available also in 10' length.

# McCRAY REFRIGERATORS

WORLD'S LARGEST MANUFACTURER OF REFRIGERATORS FOR ALL PURPOSES



# Now Frigidaire offers the HYDRATOR



*The Hydrator is something new in electric refrigeration, a moist air compartment that makes vegetables and salad materials delightfully fresh and tender. It keeps them full-flavored and crisp until used, adds immeasurably to Frigidaire values*

**N**OW, with the development of the Hydrator, Frigidaire offers a new service to users . . . a special compartment for vegetables and foods that need *added* moisture.

The Hydrator makes wilted celery crisp and fresh again. It makes lettuce tender and brittle. It quickly restores the firmness of radishes, tomatoes and other vegetables. It keeps all green vegetables fresh and full-flavored until ready for use—all in one compact compartment.

*And Frigidaire offers other  
added features*

Today every household Frigidaire is equipped with the Hydrator. It is



part of the surplus value offered by Frigidaire. So, too, is the famous "Cold Control" which enables users to speed the freezing of ice cubes and make many delicious new desserts. And in addition to these two outstanding features—the Hydrator and the "Cold Control"—Frigidaire has the extra power that insures dependable

refrigeration regardless of outside temperatures. All mechanical parts are concealed—and quiet. Patented self-sealing ice trays permit the freezing chamber to be kept intensely cold. And to make Frigidaire still more practical and more strikingly beautiful, every household cabinet is now rust-proof Porcelain-on-steel inside and out.





*The famous "Frigidaire Cold Control"*

more than all other electric refrigerators combined.

Dealers interested in securing the Frigidaire franchise are invited to write for complete information.

Frigidaire Corporation,  
Subsidiary of General Motors Corporation,  
Dept. T-73, Dayton, Ohio.

Please send me complete information about  
your proposition to dealers.

Name .....

Address .....

*The world's fastest selling electric refrigerator*  
Greater value has made Frigidaire the world's fastest selling electric refrigerator. More than 1,300,000 Frigidaires are now serving their owners—

# FRIGIDAIRE

*Electric Refrigerators for Homes, Stores and Public Institutions . . . Electric Water Coolers for Homes, Stores, Offices and Factories . . . Ice Cream Cabinets . . . Milk Cooling Equipment . . . Room Coolers*



## EXECUTIVES PREDICT BIG GAINS IN 1930 TIME-O-STAT SALES

Elkhart, Ind.—The keynote of the first Time-O-Stat Convention, as it convened at the Hotel Elkhart, illustrated an optimistic tone for 1930. The meeting, which opened on the morning of January 15 and closed the evening of January 18, was attended by distributors from all parts of the United States and Canada.

At the introductory session, an address of welcome was delivered by Julius K. Luthe, and every distributor and member of the Time-O-Stat Sales, Production and Engineering Departments was introduced.

From this initial session it was apparent that the unanimous opinion of all those present indicated that 1930 holds an opportunity for those interested in control equipment. With automatic products so firmly entrenched and represented in every part of the household, the distributors believe the use and popular acceptance for things automatic brings forth opportunity for those who sell controls for such automatic equipment.

Immediately following the introductory session the entire group of approximately 100 men were taken to the modern daylight plant of the company. Small groups were formed under the guidance of a divisional manager and an engineer and a complete tour of inspection was enjoyed by the distributors. It required about two hours for all of the groups to complete their inspection, as the plant is very extensive and arranged on a single floor, providing daylight working conditions for all the employees. A general luncheon was held in the cafeteria, which has been built immediately beside the manufacturing plant. The entire organization was then transported by special coaches to convention headquarters.

The afternoon meeting was called by Julius K. Luthe, chairman, who outlined the purposes of the convention, with an explanation of the company's policies and program for this year. He next introduced George R. Corey, manager of the Oil Control Division, who presented an outline of the products offered by his division. The group assembled at 8:00 p. m. at the factory for a round table discussion of the engineering and production plans for the year. R. W. Johnson, vice-president in charge

of engineering and production, gave an explanation of the development in Time-O-Stat facilities during the past year. He introduced a number of new products and spoke of other developments which are now in progress.

On Thursday morning the meeting was resumed under the direction of A. I. Wallace, vice-president. After a brief address, he introduced A. E. Peterson, manager of the Gas Control Division, who spoke on the products available in his department. At 11 a. m. T. J. Major, manager of Sign Flasher Division, gave an illustrated report of the selling features offered in this end of the business.

D. J. Jones, manager of the Coal Control Division, at the afternoon meeting spoke on unit heater controls. Next G. R. McLarty, manager of the Refrigeration Control Division, discussed the new features included in the controls of the present line, and also outlined certain new products for his field. L. B. Miller, assistant sales manager, presented a number of interesting points of contact which are of mutual interest between the distributors and the company. Following dinner, the individual groups convened at the plant for discussions of individual problems. This meeting was in charge of Messrs. Miller and Lindemann.

The meeting on January 17 was under the direction of L. B. Miller, assistant sales manager. D. J. Jones, manager of the Coal Control Division, at the morning session, described the many controls made by the company for this field. H. D. Leopold, president of Freeze, Vogel & Leopold, Inc., Chicago, advertising counselors for Time-O-Stat, outlined the extensive advertising plan which has been arranged for this year. He explained the campaign which will be conducted in all leading trade papers, and presented illustrations and layouts which were of interest to the distributors.

T. J. Hereford, advertising manager of the company, immediately followed with a description of the direct mail campaign, which is co-ordinated with the advertising effort of the company. He laid stress upon the importance of this advertising in its development of market opportunity for the distributors. L. B. Miller recited a number of interesting personal successes, which he has had in recent years, through the use of direct mail advertising and its attendant forces.

At 2:00 p. m. the distributor's point of view was considered by A. I. Wallace, vice-president, and R. W. Howbert, distributors' representative. Julius K. Luthe summarized the impor-

tant points which had been discussed in detail during the convention, and outlined the co-operative policies of the company. Mr. Luthe spoke of the growth which the company has enjoyed since its inception, through the consolidation of Leachwood Company, Time-O-Stat Corporation, Absolute Con-Tac-Tor Corporation, and Cramble Engineering Corporation. The meeting was adjourned following the president's message, and all distributors were transported in special Pullmans to Chicago for an evening of festivities, arranged in a special suite at the Congress Hotel, Chicago.

The following distributors attended the meeting: R. C. Haberkorn, Denver, Colo.; P. J. O'Mara, San Francisco, Calif.; W. Schwan, Dallas, Tex.; E. J. Hungerford, Cleveland, O.; R. M. Sonderling, Cleveland, O.; C. D. Downing, Birmingham, Ala.; C. J. Paisley, T. McDonald Company, Ltd., Toronto, Canada; C. G. Fisher, T. McDonald Company, Ltd., Toronto, Canada; J. S. Bowers, St. Louis, Mo.; F. A. Smith, Pittsburgh, Pa.; S. L. Richards, Salt Lake City, Utah; H. B. Lauer, Los Angeles, Calif.; E. J. Hansen, Milwaukee, Wis.; Ray Lewis, New Orleans, La.; M. R. Worrall, Newark, N. J.; H. A. Lang, Philadelphia, Pa.; W. J. Foley, Baltimore, Md.; F. D. Wersant, Pittsburgh, Pa.; Hollis M. Johnson, Omaha, Neb.; J. R. Abrahamson, Minneapolis, Minn.; G. P. Gregory, New York City; C. W. Allen, Minneapolis, Minn.; James T. Castle, Pittsburgh, Pa.; H. E. Lake, Boston, Mass.; D. J. McConnell, Pittsburgh, Pa.; J. T. Harrison, Seattle, Wash.; George P. Braid, Denver, Colo.; T. McDonald, T. McDonald Company, Ltd., Toronto, Ontario, Canada. All distributors were given private interviews with officials of the company at the executive headquarters in the Peoples Gas Building, Chicago, on Saturday morning.

## LAIDLEY CO. TAKES OVER LARGER G. E. TERRITORY

Portland, Ore.—The Laidley Co., which distributes General Electric refrigerators in Spokane, has now replaced the Arch Electric Co. as distributor here. Laidley company's distributing territory now includes both the Spokane, Wash., and the Portland, Ore., districts.

Harold Laidley, formerly of Chicago, Ill., is president of the company bearing his name. He will make his headquarters here. D. O. Miller, also of Chicago, is in charge of the Spokane distributing office.

In connection with the establishment of the new organization here, G. J. Ruck, of San Francisco, Pacific Coast representative for the Refrigeration Department of General Electric Co., covered the Oregon and Washington territory and made a first-hand survey of the section.

## McFADON AND JORDAN ARE PROMOTED BY FERRO

Cleveland, Ohio—E. C. McFadon has been placed in charge of porcelain enamel spraying equipment sales for the Ferro Enamel Supply Company, suppliers of a complete line of porcelain enamel, enameling supplies and equipment. Mr. McFadon has spent the past six months studying spraying equipment specialized to porcelain needs, particularly continuous spraying equipment. He was formerly in charge of the St. Louis district of The Ferro Enamel Supply Co.

Beginning February 1st, Crain S. Jordan will be transferred from the Furnace Engineering Department to its Sales Department, where he will have charge of mill room equipment sales.

## Distributors Gather at Elkhart Factory



## ICE-BERG ELECTRIC REFRIGERATION

Makes  
Ice Cubes



Model 100 C

Storage for  
Bottle Beverages



Model 100 A

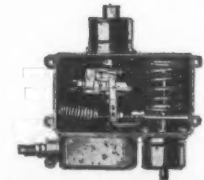


Model 100 E

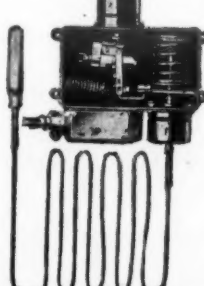
ICE-BERG Electric Water Coolers make ice cubes. No other coolers do this. Have compartments for bottle beverages. Models for both bottle and city water. Sold in 1929 from coast to coast. Large water companies put them out on rental at splendid profit. Now is the time to make franchises for 1930. Write for catalog No. 135 and full information.

**Iceberg Manufacturing Co.**  
Gardner, Mass.

## THIS MERCROID IS 2 CONTROLS IN ONE INSTRUMENT



Model IBA for low side control by pressure. Adjustable range—any cut-in or cut-out points between 25 inches vacuum and 25 lbs. pressure. High side cut-out—adjustable for pressures up to 160 lbs.



Model IBL and IBK for low side control by temperature. Adjustable range—IBL any cut-in or cut-out points from plus 10° to 70°; IBK from minus 30° to plus 60°. High side cut-out—adjustable for pressures up to 160 lbs.

THE new improved Mercroid Dual Control combines low side control and high side "cut-out" in one instrument. It is designed especially for Multiple Hook-ups, ice cream cabinets and general commercial work on Methyl Chloride or Sulphur Dioxide units. Furnished to operate either by pressure or by temperature of low side.

One feature about which engineers are enthusiastic is that in changing the differential, only the cutting in point is affected—no time need be lost in changing adjustment after installation.

The high side of the control operates entirely independent of the low and changes in the low do not affect the high side.

These controls operate with the well-known Mercroid switch—no exposed arc—no corrosion of contacts—and the control carries full line current, either 110 or 220 volts.

Write today for complete information on these instruments and the Solenoid Valve for water-cooled units.

**AMERICAN RADIATOR COMPANY**

Accessories Division, Dept. MER-1  
40 West 40th St., New York, N. Y.



# WATCH...!

WELSBACH WILL SHORTLY  
ANNOUNCE A BASIC IMPROVE-  
MENT SO RADICAL AND IM-  
PORTANT AS TO COMPLETELY  
REVOLUTIONIZE HOUSE-  
HOLD REFRIGERATION.

*This Valuable Development  
is Safeguarded by:*

Millions of invested Capital . . . . . A modern  
plant . . . . . A determination to perpetuate  
and enhance Welsbach's enviable position.

Selling rights for Welsbach Low Pressure Electric  
Refrigeration constitute a permanent franchise of  
great value. One may be available in your territory.

**W E L S B A C H**  
**C O M P A N Y**

Gloucester City (Near Philadelphia) New Jersey



# First Westinghouse Unit Leaves Production Line



WESTINGHOUSE officials viewing the operation of charging the first production unit of the new Westinghouse electric refrigerator at the Mansfield factory. Reading from left to right, company officials taking part in ceremony: J. F. O'Donnell, sales supervisor; E. M. Olin, works manager; I. F. Baker, European sales manager, Westinghouse International; E. L. Spray, works engineer; Ralph Gates, manager, Sales Promotion Department, and M. C. Terry, manager of the Refrigeration Engineering Department, who designed the unit. J. L. Zimmerman, of the Works Engineering Department, is turning the valve.

## WESTINGHOUSE OFFICIALS SEE PRODUCTION BEGIN

(Concluded from Page 1, Column 2)

The sulphur dioxide is chemically analyzed again before the units are charged. The moisture content will run not more than .002 of one per cent.

The next operation on the production line puts a special brine or freezing solution into the space between the walls of the evaporator tanks, thus giving the evaporator considerable thermal storage.

As can be seen in the photograph at the top of this page, the refrigerating unit of the Westinghouse refrigerator is an integral piece of mechanism. It requires no other work of installation other than simply to place it in position.

After the unit is charged with oil and sulphur dioxide, both motor and compressor operate in an hermetically sealed steel case requiring no attention from the owner.

## SEVEN DISTRIBUTORS TO SHOW THE NEW MACHINE

Mansfield, Ohio—Distributors in seven cities have been appointed by Westinghouse Electric & Manufacturing Co. to open the retail selling campaign on the new Westinghouse electric refrigerator on February 1. These distributors are: Tafel Williams Co., Louisville, Ky.; American Refrigerator Co., Columbus, Ohio; Iron City Electric Co., Pittsburgh, Pa.; Mook Electric Co., Canton, Ohio, and the Westinghouse Electric Supply Companies of Detroit, Cleveland and Toledo.

Plans of the Westinghouse Company call for the production of 25,000 units this year, all of which will be distributed east of the Mississippi River and north of the state of Virginia. New distributing centers will be opened in the course of the year in Cincinnati, Ohio, Philadelphia, Pa., Washington, D. C., Baltimore, Md., New Haven, Conn., New York City, Newark, N. J., Boston, Mass., Indianapolis, Ind., Nashville, Tenn., and Chicago, Ill.

The distribution plan calls for a general distributor in each principal territory, under which dealers will operate in the outlying districts. In most instances the distributor will not operate a retail business in the principal city served.

## "EBCO" Is Beyond The Experimental Period

For fifteen years, the name "EBCO" has been identified with Drinking Fountains—it was one of the pioneers of the bubbler type dispenser of drinking water. The progress of "EBCO" Water Coolers has been marked by definite improvements—patented features which give to the trade name "EBCO" a significance of quality superior in every way.



Model C-329 Cafeteria type with storage compartment for large short time demands.

## There's An "EBCO" Water Cooler for Every Need

Thousands of "EBCO" Water Coolers are providing dependable, sanitary drinking water facilities in mills, factories, offices, hospitals, schools, hotels, restaurants, etc. Cooled by electrical refrigerating units or ice—cabinet, pedestal or wall units—special stream control feature maintains constant stream height regardless of line pressure fluctuation. "EBCO" Water Coolers are doubly protected. Let us send you full details.

The D. A. Ebinger Sanitary Mfg. Company  
COLUMBUS, OHIO

Manufacturers also of Ventilated Closets, Urinals, Steel Toilet Partitions, Circular Wash Fountains and EBCO Dishwashing Sink.



Model C-304 Bubbler type—with automatic stream control valve—regulates automatically without waste of water.

WRITE TODAY

# "EBCO"

WRITE TODAY

"THE EMBLEM OF QUALITY"

PLEASE SEND SPECIAL LITERATURE ON WATER COOLERS TO

Name .....

Address .....

City .....

State .....

E. R. N. 1-29



## Sulphur Dioxide For Direct Charging

Every Container Analyzed

"Pure" Bone Dry

Cylinders 2 to 150 lbs

Also Ton Drums—Tank Cars

ANSUL Chemical Co. MARINETTE, WIS.

precision built

## Motor, Transmission Eccentric and Crank Shafts

We specialize in small SHAFTS made to your specifications. Workmanship absolutely guaranteed.

Send us your blue prints and we will send you our prices.

196 Milwaukee St.

Modern Machine Works, Inc.  
MILWAUKEE, WIS.



ON AND OFF IN A JIFFY

## Fulco REFRIGERATOR COVERS

"FULCO" covers are used by those dealers who realize the importance of making deliveries in perfect condition—without scratches or broken enamel. For they know that complaints mean dissatisfied customers and loss of business.

"FULCO" covers are a real service feature that helps sales and holds trade.

Substantially constructed, heavily padded, box-shaped, providing perfect protection.

Give us the dimensions of your refrigerators, and let us quote special prices on your individual needs. Write our nearest house.

Fulton Bag & Cotton Mills

Manufacturers Since 1870

ATLANTA · NEW ORLEANS · DALLAS · ST. LOUIS

MINNEAPOLIS · BROOKLYN · KAN. CITY · KAN.



# Men Who are Directing Westinghouse Campaign



Ralph Gates  
Manager  
Sales Promotion  
Department

L. K. Baxter  
Manager  
Service and  
Installation  
Department



M. C. Terry  
Manager  
Engineering  
Department



J. F. O'Donnell  
Sales Supervisor



J. W. Haley  
Special  
Representative



Carl D. Taylor  
General Manager

## TAYLOR IS LEADER OF ABLE ORGANIZATION

THE design, manufacture, marketing and servicing of the new Westinghouse electric refrigerator, recently placed on the market by the Westinghouse Electric and Manufacturing Company, are under the direction of the following men:

Carl D. Taylor, general manager, formerly manager of the Industrial Section of the company's Central Sales District.

M. C. Terry, manager, Engineering Department. He is primarily responsible for the present design of the refrigerator, having directed the development work during the past twelve years. Previous to this he was assistant chief research engineer of the South Philadelphia Steam Apparatus Works.

J. F. O'Donnell, sales supervisor, formerly syndicate representative in the Domestic Appliance Department of the New York Office.

Ralph Gates, manager, Sales Promotion Department, was formerly editor of the Westinghouse Magazine.

John W. Haley, formerly of the Headquarters Sales Department at East Pittsburgh, is special representative in charge of warehousing.

L. K. Baxter, with extensive experience gained from other companies, is manager, Service and Installation Department.

## TEN WEEK DRIVE NETS 821 SALES FOR COMPANY

Evansville, Ind.—Selling 821 units in a period of ten weeks is the record of the Southern Indiana Gas and Electric Co., local Servel and Electrolux distributor. Five hundred units were sold during the first week of the sales campaign, which closed December 31, 1929. The sale covered models of 1928 and 1929 design, the majority of the cabinets sold were of the domestic type.

A final check showed that 344 model 8-10's, 137 model F-7's, 70 model K-7's, 87 model S-5's, 74 model H-5's and 132 model K-5's were sold during the ten-week period.

Foley Roberts, advertising manager of the Southern Indiana Gas and Electric Co., credits the success of the sale to a telephone canvass of the city, personal calls by salesmen, newspaper ads and the fact that news travels fast.

## WASHINGTON CODE

(Concluded from Page 2, Column 5)

as follows: "Any refrigerant which has a harmful effect on the eyes, nose, throat or lungs, as ammonia, sulphur dioxide, or methyl chloride."

Provisions for permits are:

(a) "No mechanical refrigerating system, whether operated mechanically or by temperature control, shall be installed, maintained or operated in the District of Columbia without a permit therefor."

(b) "No permit shall be issued for any mechanical refrigeration system in wards or private rooms of hospitals, sleeping quarters of asylums, cell blocks of institutions, or any places where people are confined or helpless."

(c) "No permit shall be issued for any system employing more than 5 pounds of refrigerant, in entrances or exits, in hallways or corridors, or under or adjacent to stairways of any building, lobbies and/or auditoriums or places of public assembly, hospital diet kitchens or similar locations."

(d) "No permit shall be issued for any system employing more than 12 pounds of refrigerant and furnishing refrigeration in buildings containing theatres, churches, assembly halls, schools, asylum dormitories, hospital wards, or similar occupancy, unless all parts containing refrigerant are in rooms having no door or opening into any part of the building so occupied but entered and ventilated from the outside, and all refrigeration in such buildings or parts of buildings supplied by the indirect method."

(e) "No permit shall be issued for any system using the direct method of refrigeration and employing 100 pounds or more of a flammable or irritant refrigerant, unless the premises are used exclusively for industrial or commercial purposes; or in other buildings unless the entire refrigerating system is confined to the first floor and/or basement, or to the top floor and/or roof."

(f) "No permit shall be issued for any system using the direct method of refrigeration and employing 20 pounds or more of refrigerant in any combination business and residence building, hotel, apartment house or multiple residence, or in retail stores in basements and/or above first floor, unless such system is protected by a secondary gas-tight system constructed according to the requirements of 'Mechanical Refrigeration Safety Code,' or unless the entire system is confined to the first floor and/or basement or the top floor and/or roof, and that portion of the building housing the system cut off from all the inhabited portions of the structure and from entrances thereto and exits therefrom by unperforated fire resistive walls."

## MUSIC COMPANY PURCHASES DEALER FRANCHISE

Evansville, Ind.—The dealer franchise of the local branch of the Frigidaire Sales Corp., 321 Main St., has been purchased by the Stahlschmidt Piano Co. of this city, Elmer D. Lohring, president of the Stahlschmidt company, has announced.

For the past four months the Frigidaire agency here has been operating as factory branch of Frigidaire headquarters in Dayton, Ohio, after having bought out the Refrigeration Products Co., distributor for more than a year.

F. C. Rhodes, manager of the Maytag-Rhodes Company, recently appointed, will continue as manager under the Stahlschmidt Co. The Frigidaire agency will be transferred to the Stahlschmidt Building, 618 Main St.

## UNIVERSITY OF KANSAS NOW KELVINATOR EQUIPPED

Lawrence, Kans.—E. M. Lawse, merchandise manager of the Kansas Electric Power Co., Kelvinator distributors, reports that his company has sold and installed Kelvinator electric refrigeration in the University of Kansas at Lawrence. This order includes ten Kelvinator cabinets for the new Biological Building, and a P-12 installed in the residence of Mr. Lindley, chancellor of the University.

## THREE DES MOINES FIRMS SHOW AT EXPOSITION

Des Moines, Iowa—Three local electric refrigerator dealers and distributors exhibited models at the third annual Iowa Farm and Home Exposition, held here January 14, 15 and 16. They were the Frigidaire branch, the Ward B. Stringham Co., distributors for General Electric Co., and Younker Brothers Co., Electrolux dealer.

## REFRIGERATION RUBBER WARE

Specializing in the development and manufacture of hard and soft rubber parts for electric refrigeration.

THE AETNA RUBBER CO.  
ASHTABULA, OHIO

## This is a National Message to the American Housewife

Get the most  
out of your  
ELECTRIC,  
GAS or ICE  
Refrigerator

Send \$1.00 for the two big 50c rolls  
(West of Missouri and South Coast  
States 60c per roll, both for \$1.20  
postpaid).  
FREE: When ordering mention  
this ad for a Miracle Paper Dish  
Rag and interesting samples for  
You and Your Friends.



STANDS FOR "THE WORLD'S MODEL PAPER MILL"  
KALAMAZOO VEGETABLE PARCHMENT CO.  
KALAMAZOO MICHIGAN U.S.A.

MANUFACTURING WORLD-WIDE FAMOUS FOOD PROTECTION PAPERS

YOUR refrigerator will serve exactly and according to intelligent use and operation, and your palatable, health building foods will speak for themselves when served.

Are you using both KVP Refrigerator Papers? Try the famous pair—Heavy Waxed Paper in "Cutter Box"—it seals tight (one sheet will do) keeps the moisture in or keeps the moisture out as desired. However, remember all foods should not be wrapped in Waxed Paper—for 100% results you also need KVP Household Parchment, the waterproof paper for cooking and for wrapping all moist, greasy and wet foods—a cheesecloth substitute (you can boil it) like a rag when wet—use it again and again—it wears.

Try your Grocer, Stationer, Hardware, Department Store and Naborhood Merchants first; if they cannot serve you KVP will pay the parcel post.

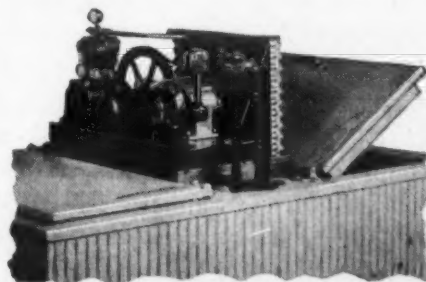
If you are in any way interested in Electric or Gas Refrigeration ... read the above over twice because it will mean much to you ... this is our National message to the American Housewife in cooperation with your refrigerator sales campaigns. Write for samples and advertising ideas that sell your refrigerators to new customers and keep old customers interested

## DOUBLE YOUR MARKET by Adding Farm Refrigeration Now!

THE Dairy Refrigeration Company are specialists in this particular field. Their years of research, and practical, engineering experience in farm refrigeration have resulted in a unit which produces TWICE THE CAPACITY ... AT HALF THE PRICE. Now Nationally advertised in "Electricity on the Farm."

DEALERS:

Cash in on this Spring's business  
Write for open territory



Glenn Dairy Icer

"A machine that will do the work ... at a price you can afford to pay."

DAIRY REFRIGERATION COMPANY

Dept. E. 311 - 64th Ave. Milwaukee, Wis.



# ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

PUBLISHED EVERY TWO WEEKS BY

BUSINESS NEWS PUBLISHING CO.

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January 29, 1930

## A Promising Field

THE cooling of water is a branch of the refrigeration industry that holds forth great possibilities. From the days of the Romans when snow was brought down from distant mountains to cool water and other beverages, one plan after another has been tried. A review of the articles on water cooling which appear in this issue of the News, shows the wide range of methods and machines used for that purpose. What at first seems a simple problem assumes an entirely different aspect when examined closely. Estimating the capacity required for peak loads and other engineering features, demand thorough training for the job.

There is a well recognized need for educating the public to the benefits of properly cooled water. Physicians have stated time and again that there is danger in drinking water that is too cold, and as water that is too warm is unpalatable, there remains a fairly narrow range of temperatures at which water should be kept to be drinkable. How to keep water within this range is something that the public knows little about. The average man knows well enough when water is just cold enough, but he doesn't know how to go about the job of seeing that he always gets water just as he likes it.

Another thing would help, too. That is the further spread of accurate knowledge in regard to water cooling within the limits of the industry. It is a complex subject, especially when multiple installations are required, and the men capable of handling the selling of such installations from start to finish are sometimes hard to find. There is too often a tendency to write home to the factory and consult the engineering force, meanwhile letting the prospect do the cooling off.

Fortunately more and more men in charge of factories, stores, hotels and other places of public assemblage are realizing the benefits of properly cooled water. They are doing their share to promote the welfare of the water cooling industry by furnishing cooled water to those who enter their premises. They are passing the good word along, but it isn't being passed fast enough. The market is there; it exists in every section of the country; it is waiting for the men with the ability to go after it.

\*\*\*

## Evidence of Progress

WHEN ELECTRIC REFRIGERATION NEWS was established almost four years ago, service to the entire industry was among its chief aspirations. An earnest and continuing effort has been made to be of some help to every element in the electric refrigeration industry.

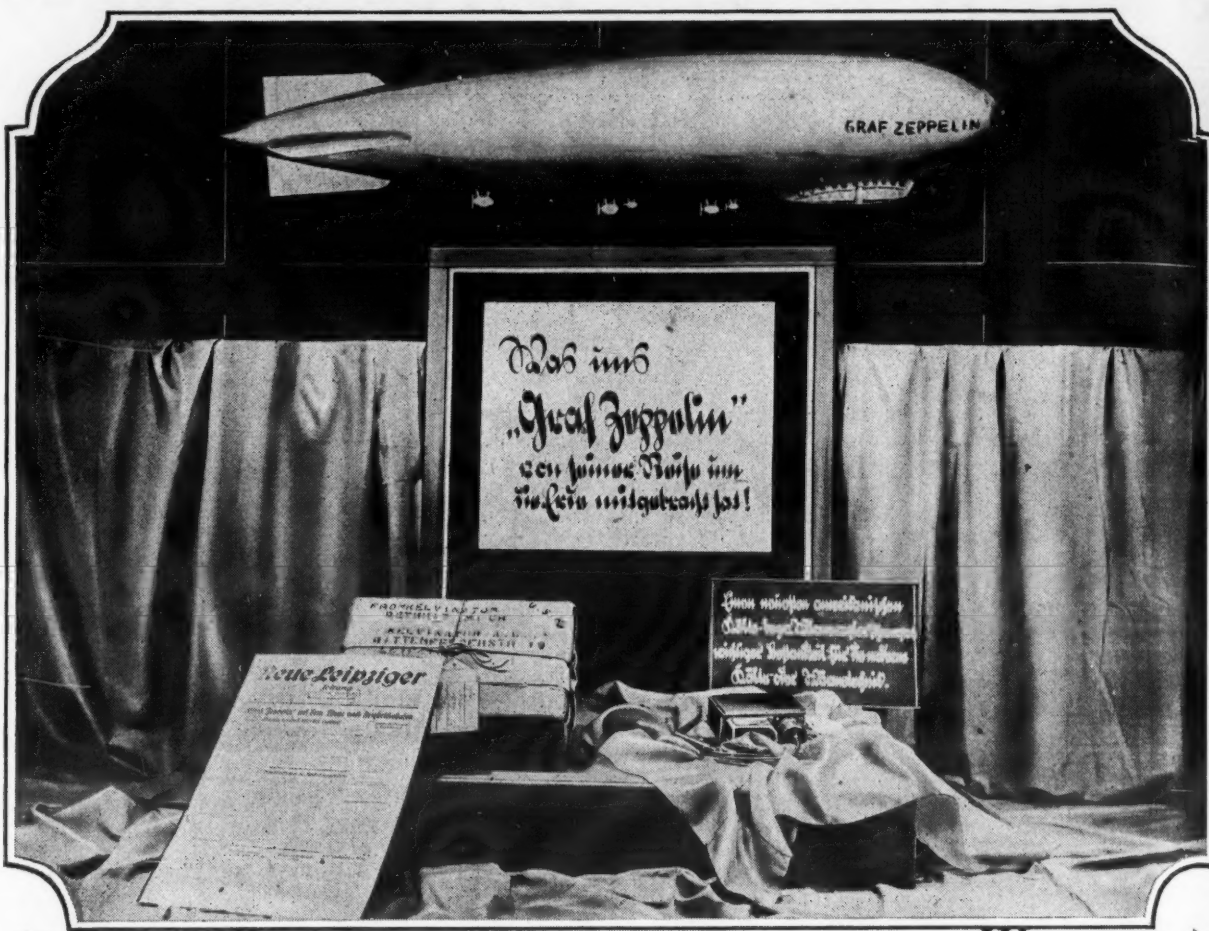
Those in charge of this publication are of course unable to know the exact value of the work that they are turning out. The best they can do is to work their hardest in the confident belief that they are performing a real service for the industry.

Now and then, however, something occurs that gives them an insight into the measure of their own accomplishment; tells them whether they are doing the job they set out to do. A letter which was received the other day, and which is reproduced elsewhere on this page, brings such a message, and it is being passed along to the readers of the News as evidence that this publication is accomplishing one of its chief objects.

The letter, which is from Carl D. Taylor, general manager of the Refrigeration Department of the Westinghouse Electric Company, tells what happened as a result of the advertisement and editorial mention of his Company's plans for entering the refrigeration field, which appeared in the January 1st issue of the News. "We are swamped with applications from distributors, dealers and applicants for positions," writes Mr. Taylor, and then goes on to express his appreciation of the service rendered.

May we be pardoned for referring with pride to the fact that Mr. Taylor's letter gives evidence that the News is serving the entire industry. The letter is from a well pleased manufacturer; it tells of a prompt response from distributor, dealer and the man who is seeking to better himself as a worker in the industry. Manufacturer, distributor, dealer worker; they are the refrigeration industry which this newspaper is trying to serve.

## German Dealer Knows Value of Publicity



A Kelvinator temperature pressure Mercoid control, shipped aboard the Graf Zeppelin on its historic round-the-world flight, was landed at Leipzig, Germany, for Messrs. Kelvinator Elektro-Kuhlanlagen A. G., who showed it in this striking window display. Translation of the placard immediately below the Zeppelin reads: "What Graf Zeppelin has brought along for us from its trip around the world." The lower right placard, just above the Mercoid control, reads: "An American speed heat control of the latest type, a very important element of the refrigeration industry." The

control was shipped on a bill of lading issued by the Zeppelin Works at Friedrichshafen, and the customary documents covering the shipment were forwarded by the Zeppelin in connection with airplane delivery from Friedrichshafen to Leipzig. Frank N. Conroy, in charge of export traffic, Kelvinator Corp., Detroit, arranged for the shipment of the control while the big dirigible was at Lakehurst, N. J.

This window was set up as soon as possible after the American control arrived, and while the interest in the Graf Zeppelin was at fever heat.

## FOREIGN SHIPMENTS OF ELECTRIC REFRIGERATORS

November Exports Reported by Bureau of Foreign and Domestic Commerce

Country	Destination	Units		Units	
		Ton	Capacity	Ton	Capacity
Azores and Madeira	2	474	...	...	...
Belgium	116	18,463	34	5,442	...
Czechoslovakia	1	215	...	...	...
Denmark	4	691	6	899	...
France	33	6,908	5	1,126	...
Germany	91	13,775	70	11,572	...
Netherlands	17	1,508	9	2,010	...
Norway	1	116	...	...	...
Portugal	17	3,094	...	...	...
Soviet Russia in Europe	2	675	3	1,054	...
Spain	7	2,337	...	...	...
Sweden	27	1,306	...	...	...
Switzerland	38	3,970	13	1,708	...
United Kingdom	136	14,450	1	429	...
Canada	336	49,113	13	5,331	...
Costa Rica	10	1,004	2	1,261	...
Guatemala	4	689	...	...	...
Honduras	2	657	...	...	...
Panama	76	14,115	7	1,721	...
Salvador	1	845	...	...	...
Mexico	15	2,468	1	480	...
Bermudas	8	1,422	...	...	...
Barbados	7	2,001	...	...	...
Jamaica	1	351	...	...	...
Trinidad and Tobago	1	164	...	...	...
Other British West Indies	10	1,332	...	...	...
Cuba	242	45,458	9	2,484	...
Dominican Republic	16	6,683	...	...	...
Netherlands West Indies	3	862	...	...	...
Haiti	4	369	...	...	...
Virgin Islands	1	290	...	...	...
Argentina	65	9,516	...	...	...
Brazil	167	20,741	...	...	...
Chile	59	3,590	...	...	...
Colombia	13	3,130	1	563	...
Peru	20	2,411	...	...	...
Uruguay	5	1,140	27	5,032	...
Venezuela	47	8,808	18	5,311	...
British India	177	22,204	18	3,634	...
British Malaya	14	1,897	1	415	...
Ceylon	1	190	...	...	...
China	23	4,502	1	273	...
Java and Madura	19	2,190	...	...	...
Other Netherlands East Indies	6	1,020	...	...	...
French Indo-China	55	8,267	...	...	...
Hong Kong	30	4,033	1	460	...
Japan	2	350	7	4,504	...
Philippine Islands	2	191	60	10,343	...
Siam	8	565	...	...	...
Australia	995	102,536	125	19,761	...
British Oceania	6	359	...	...	...
New Zealand	51	6,124	36	9,675	...
British East Africa	9	1,675	...	...	...
Union of South Africa	417	80,678	...	...	...
Other British South Africa	1	441	...	...	...
Africa	6	769	...	...	...
Gold Coast	15	2,404	...	...	...
Nigeria	4	612	...	...	...
Other British West Africa	1	240	...	...	...
Egypt	4	591	...	...	...
Morocco	22	4,265	2	814	...
Mozambique	...	...	...	...	...
Total	3,475	\$491,249	470	\$96,964	...

## The New Editor

WILLIAM Jabine, who became editor of the News on January 1st, has been identified with trade publications for more than a decade. After several years in newspaper work, chiefly on The Sun in New York, he became assistant editor of the Western Electric News, an employees' magazine published by the Western Electric Company. He later helped in the establishment of Successful Methods, a monthly publication in the construction field, of which he was editor for seven years and publisher and part owner for three. This maga-

zine was purchased by the McGraw-Hill Publishing Company and Mr. Jabine remained as editor for more than a year. In order to take the editorship of the News, Mr. Jabine resigned as editor of Trunks and Leather Goods. He served two years as director of publicity of the American Road Builders' Association, and also was identified with the Pan-American Highway Commission. Mr. Jabine has specialized in the effective use of illustration and is the author of several articles on that branch of publication work.

## Co-operation

### Westinghouse Electric & Manufacturing Company

Mansfield, Ohio.

Office of  
Carl D. Taylor,  
Manager  
Refrigeration Department

January 16, 1930.

Mr. F. M. Cockrell,  
Electric Refrigeration News,  
550 Macabees Building,  
Detroit, Michigan.

Dear Mr. Cockrell:

In reply to your letter of the 13th inst., I want to express my appreciation for your fine cooperation and presentation of the Westinghouse Refrigerator in the January 1 issue of the News.

We are being swamped with applications from distributors, dealers and applicants for positions, and from the manner in which the public is accepting this announcement and the able manner in which you handled same, I cannot see anything but success for the new Westinghouse Refrigerator.

I want to personally thank you for your part in this matter and I feel sure that your personal cooperation and that of the Electric Refrigeration News will be very helpful in the successful distribution of our unit.

Yours very truly,

Carl D. Taylor, Mgr.  
REFRIGERATION DEPARTMENT.

CDT:3



## Williams Men Inspect New Products at Annual Sales Conference



Williams Men Attending Annual Sales Conference at Bloomington, Ill.

Bloomington, Ill.—Products, plans and policies constituted the keynote of the Williams Oil-O-Matic Heating Corporation's annual sales conference, held from January 6 to 11 in the factory here. It was attended by more than 100 salesmen and divisional managers from all parts of the country. The representatives agreed that 1930 would be the best year in the company's history.

Markets, financing methods, sales, service and advertising were discussed in detail in all-day sessions. The conference also included schools of instruction in the latest features of the Ice-O-Matic line of refrigerating machines, the Williams Oil-O-Matic Model J and Junior oil burners, and Disto-Stove.

Speakers were almost exclusively from within the organization, and included also W. Y. Rahn, of the Commercial Credit Company, Chicago; Fred Larison, Middle States Securities Company, Bloomington, Ill.; L. U. Larkin, Larkin-Warren Refrigerating Co., Atlanta, Ga.; and E. D. Pellegrin, Benjamin Electric Mfg. Co., Chicago, makers of Crysteel line of Ice-O-Matic cabinets. A banquet ended the conference, which was preceded by a three-day school for dealers and service men.

Summing up the 1930 outlook, President C. U. Williams declared mid-winter sustaining of buying interest in oil-burners and refrigerating machines was indicative of what could be expected this year. He declared that the home-building horizon was brighter than at any time in the near past, and added that families generally would do thrift-buying of tried-and-true equipment in such lines as oil-burners and refrigerating machines, after finding that it cuts home operation and maintenance cost, or conserves the health of the home's occupants, or both.

"Building homes, or bringing old ones up to the necessary 1930 level of comfort and hygiene, will play a big part in the construction boom predicted by President Green, of the American Federation of Labor," President Williams asserted.

### RINEHART TAKES CHARGE OF RACINE G. E. SALES

Racine, Wis.—Phillip E. Rinehart of Racine, Wis., formerly retail manager for D. S. Stopplet, Inc., distributor in Wisconsin for the General Electric refrigerators, has recently been appointed store manager in the Racine, Wis., store of Standard Home Utilities, Inc., of Chicago. The store will distribute General Electric refrigerators and other electric appliances in Racine and Kenosha counties.

*The*  
**Filtrine**  
**Filter**  
assures  
**pure, clear**  
**water**  
from your  
**ELECTRIC**

Water Cooler

WRITE FOR DETAILS  
**FILTRINE**  
MANUFACTURING COMPANY  
49 LEXINGTON AVE. Brooklyn, N.Y.  
Manufacturers of FILTERS & COOLERS of all sizes.

# Now you can offer SERVEL Electric Refrigeration at a price never possible before!

HERE'S a new and important development . . . one of the most interesting of the year. Servel has perfected a model for smaller kitchens . . . with 4.4 cubic feet capacity . . . at a price well within the means of every American family. In this handsome refrigerator, amply powered with the expertly engineered Servel unit in a specially designed Seeger cabinet, Servel dealers have a leader that commands the attention of every woman . . . that attracts crowds to Servel displays . . . that increases sales throughout the whole Servel series.

FOR the first time it is possible for you to offer your customers the absolute dependability and extreme convenience of Servel refrigeration at an amazingly low price . . . a price almost every family can comfortably pay.

The dealer who features this new Servel . . . a splendid leader for the beautiful Servel series . . . has the assurance of a busy and profitable year in 1930. For he has the powerful selling points that make sales come faster and more easily.

*Amply powered . . .* The new 4 foot Servel is not built to sell at a price. It is equipped with the same reliable, efficient, and sturdy unit used in the large Servel cabinets . . . a big, fast-freezing unit

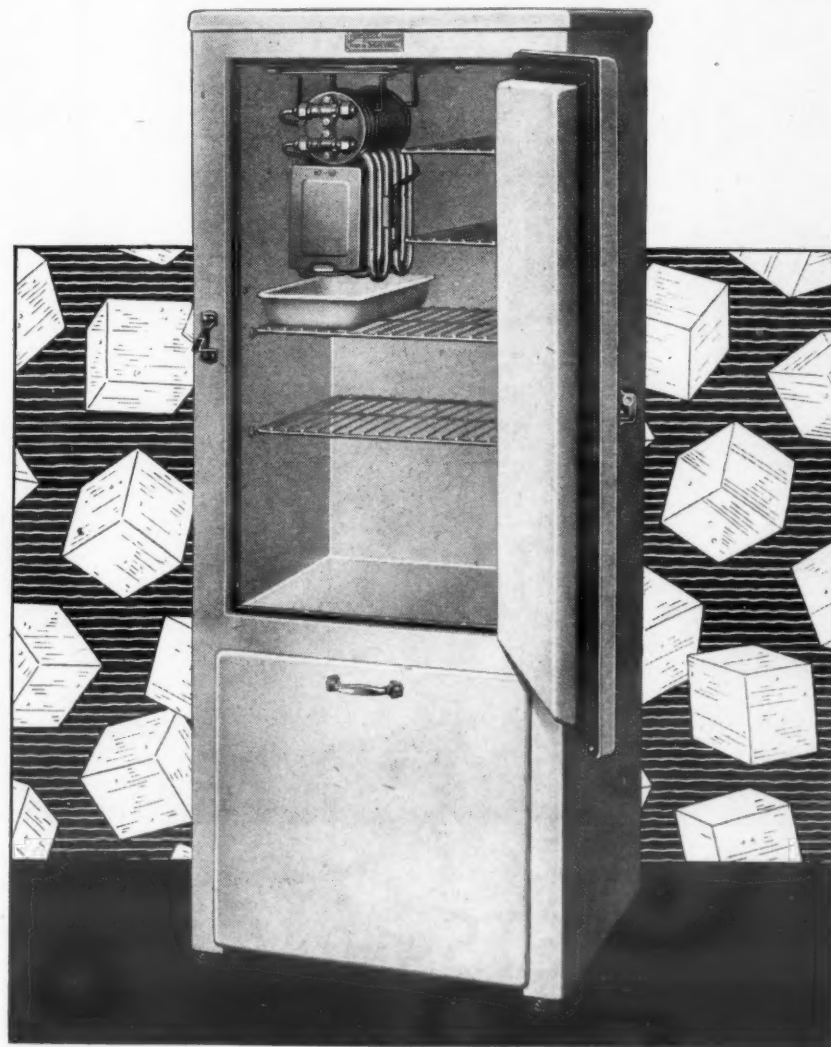
that runs smoothly and silently year after year in any climate . . . with surprisingly low current consumption.

*Freezes faster . . .* You can prove to your customers that Servel freezes faster . . . makes ice cubes more quickly without any need for temporary manual adjustments.

There are ample ice trays in every Servel. The new 4-foot model has three trays—holding 30 full-sized cubes—3.1 pounds of ice.

*A beautiful new cabinet especially designed and built by Seeger* affords convenience features that catch the eye of every woman who visits your display.

The compact dimensions make it possible to conserve valuable



kitchen space with this new Servel. And the interior is planned so that every inch is useful.

*More shelf space . . .* The new 4-foot model actually has 4.4 cubic feet of food storage capacity and 8.52 square feet of shelf space. The shelves are of the bar type so that dishes slide over them easily. And there is extra space between shelves. No crowding or tipping of dishes, even in this smallest Servel. No stooping or straining to reach the bottom shelf. And a flat top, usable and easily cleaned.

*A Complete Series of Models . . .* The dealer who holds the Servel franchise owns a complete refrigeration business—with domestic models in a full range of sizes and prices, from 4 to 10 cubic feet of food capacity . . . and commercial machines from 280 to 1200 pounds ice melting equivalent.

If you are prepared to handle this complete refrigeration service write to our main office immediately. We will outline for you in detail the profit possibilities in your territory.

## SERVEL SALES INC., Evansville, Ind.

## DYER ELECTRIC COOLER

### The Perpetual Cold Spring

THE PIONEER ELECTRIC COOLER—THE RESULT OF EXPERIENCE SINCE 1916

Five Standard Sizes—Designed for Spring Water in Large Bottles or for Water Pipe Connection—Separate Cooling Chambers—Ice Cube Compartments. Three to five Gallon Water Cooling Capacity per Hour.

FULLY GUARANTEED FOR ONE YEAR  
*Safe, Silent, Economical*

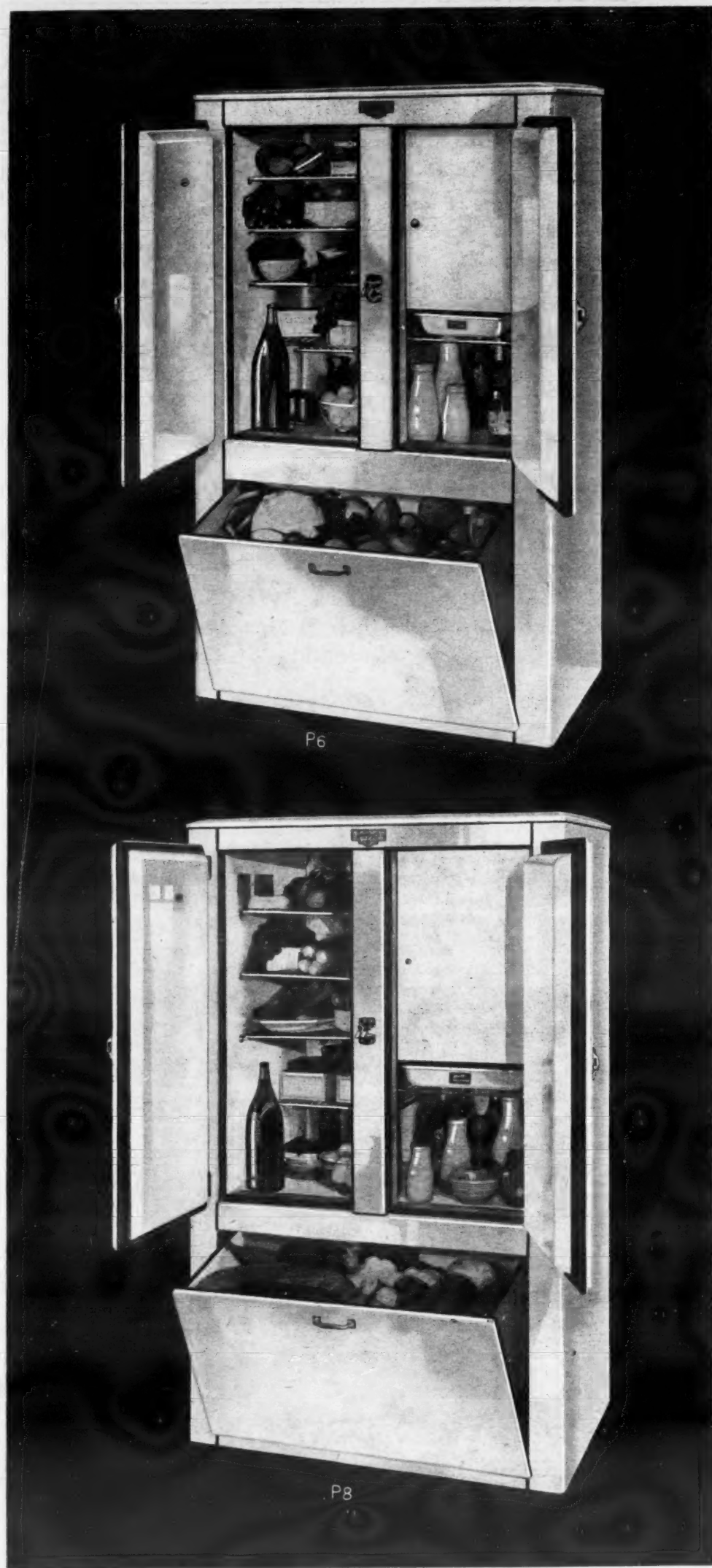
Exclusive Territories Given to Responsible Parties  
Contracting on a Purchase-Rental Basis

DYER ELECTRIC COOLER CORP.

55 W. 42nd STREET

NEW YORK CITY





P6

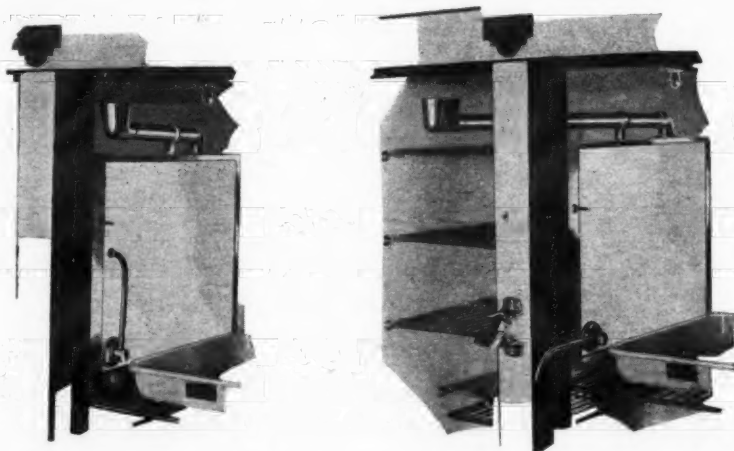
P8

# DE LUXE REFRIGERATORS

A presentation of Cabinets by Seeger, for electrical or mechanical refrigeration, typical of traditional Seeger quality, and representative of the present day requirements of refrigeration Cabinets, combining advanced utility and practical beauty.

Features indicating superiority of De Luxe Cabinets by Seeger...Water Tank; Electric Light; Chiltray; Vegetable Bin.

**SEEGER REFRIGERATOR COMPANY**  
SAINT PAUL, MINNESOTA



CLOSEUP ILLUSTRATIONS OF NE

CABINETS  
BY

*Seeger*

SAINT. PAUL





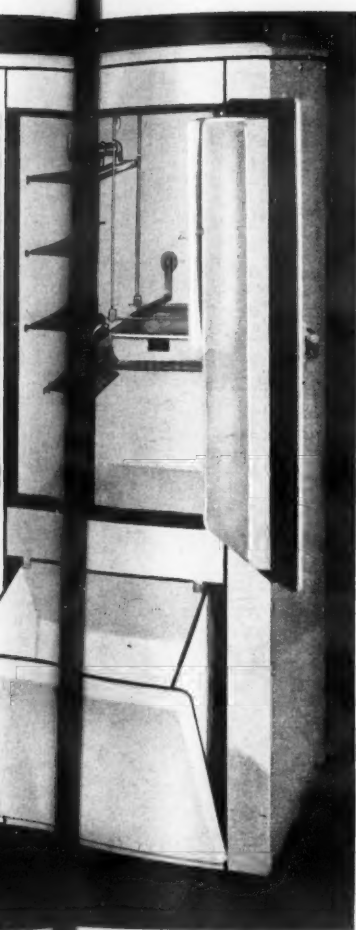
# LUXE ERATION

**WATER TANK**—Created, designed and executed by Seeger engineers after months of painstaking effort, and successfully passing exacting tests under trying and severe conditions, for the purpose of healthfully cooling water, simply and satisfactorily.

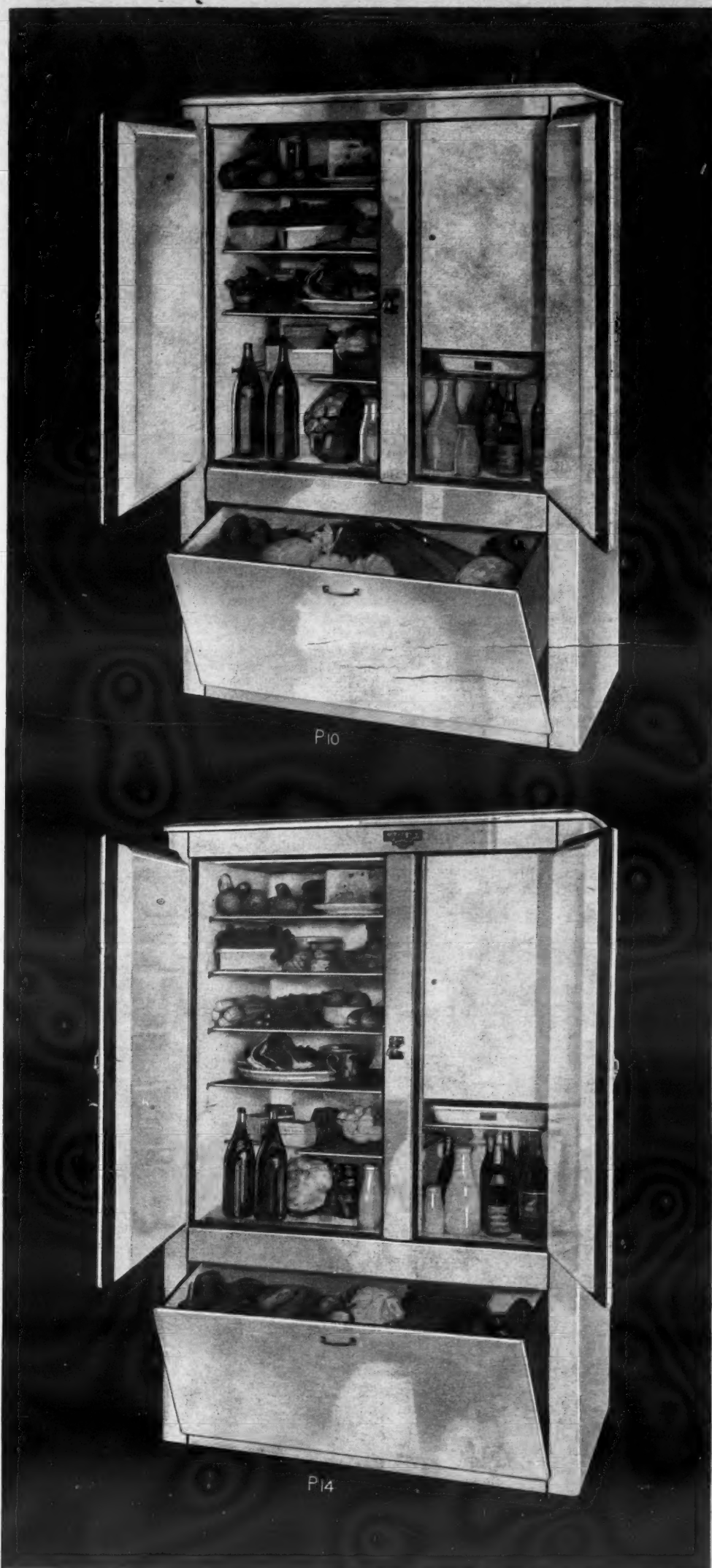
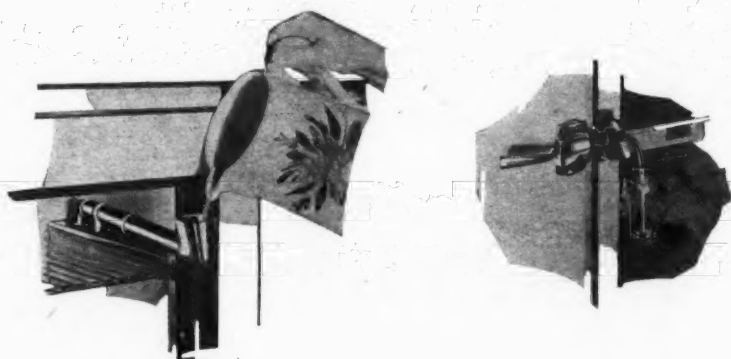
**ELECTRIC LIGHT**—A revelation in convenience, clearly and quickly illuminating entire Cabinet interior.

**CHILTRAY**—For chilling certain foods—receptacle for additional ice cubes, and also for use while defrosting.

**VEGETABLE BIN**—For immediate, convenient and healthful storage of fruits and vegetables.



IONS E NEW SEEGER WATER TANK



CABINETS  
BY

*Seeger*

SAINT. PAUL



## Water Cooler Market Divided Into Four Profitable Classes

By Ray G. Douglas, Liquid Cooler Corp.

MAN has always sought for and desired properly cooled drinking water and beverages. Many and varied means have been employed to provide this necessity. The advent of mechanical refrigeration offered new opportunities and facilities for cooling water and beverages. Engineers in the electric refrigeration industry were prompt to apply the principles of electric refrigeration to water and beverage cooling problems.

The first market for water and beverage cooling equipment was a narrow one because of the limitations of available equipment. A lack of knowledge as to the importance to health of properly cooled drinking water was another retarding factor in the sale of water-cooling equipment. With the early equipment only certain applications were possible.

As electric refrigeration was developed better, improved water and beverage cooling equipment followed. As refrigeration equipment used to preserve foods was perfected, then devices for the cooling of water and beverages were developed. This development of water-cooling equipment was supported by the published statements of medical authorities, covering the effects of improperly cooled drinking water on all classes of workers.

### The Present Market

Today industry and business are offered water and beverage cooling equipment that can be applied to practically every need. The worker in plants and factories of every sort, and office buildings can now be provided with drinking water properly cooled, which has tremendously beneficial influence on their health.

The water cooling market is divided into four classes:

- (1) Industrial service—including factories, shops, plants, etc.
- (2) Public service—including office buildings, theatres, hotels, schools, churches, restaurants, cafeterias and institutions.
- (3) Domestic service—homes and apartments in which individual and multiple installations are practical.
- (4) Beverage cooling service—for all types of beverages dispensed on draft or tap.

The industrial market alone calls for

a large number of water coolers. Factory owners and superintendents are fully aware of the fact that production of their plants is materially affected by the type of drinking water service provided. Their interest is already turned to the study and selection of water-cooling equipment. Manufacturers of water coolers find the owners of industrial concerns greatly interested in explanations of new or improved methods of cooling drinking water.

In these days of mass production it is a matter of first importance that every worker be at his greatest efficiency throughout the day. Only recently have factory managements been able to provide their workers with drinking water at constantly safe, healthful 50° temperature.

The market for industrial water-cooling equipment is country-wide. Any manufacturing plant, whether its employees number 6 or 6,000, can profitably use water-cooling equipment. According to recent statistics, there are something like 75,000 manufacturing concerns in the United States. Of this number, only a small percentage are equipped with modern water-cooling equipment. In addition, there are in the neighborhood of 1,000,000 building permits for industrial type buildings issued each year. The total value of building contracts awarded in 1929 for industrial building was \$38,084,000.

### Public Service Market

The market for water-cooling equipment for public service is only slightly less than the industrial market. There is hardly a new office building planned today that does not call for cooled drinking water service conveniently accessible to all the occupants of the building. The total value of office buildings erected in 1929 was \$99,071,000. Modernizing old buildings nearly always includes the installation of modern water-

cooling equipment. In a survey covering 310 cities, it was found that in one year 664,449 buildings were modernized. No theatre or institution would be considered up-to-date unless it provided ample and modern drinking water facilities. In this field, both the refrigeration industry and the manufacturer of drinking fixtures have unlimited opportunities to develop beautiful equipment for water-cooling service. In the fine theatres, institutions and office buildings today there is a demand for artistically designed drinking fixtures. This survey shows an average of 941 new theatres, 1,008 churches and 820 schools erected each year.

According to this survey there are more than 1,264 office buildings erected yearly, and occupied by thousands of people for at least eight hours out of the twenty-four, the necessity for adequate drinking water facilities is apparent.

Another market for water-cooling equipment is the restaurant and cafeteria. This market is rapidly increasing. In the United States there are thousands of places in which food is served daily. Every one must serve cold, palatable drinking water. The electric refrigeration industry, by the development of water-cooling devices, has contributed much to the efficiency and profit-making possibilities of any restaurant, cafe or cafeteria.

### Domestic Field

The domestic service field, although naturally smaller than the two markets mentioned, is becoming wider every day. Many of the better homes are being equipped with water-cooling facilities, with service available at different parts of the house. Clubs and small resorts are also included in this class—a comparatively new field but one which, nevertheless, adds considerably to the potential sales possibilities of water-cooling equipment. The person who enjoys cooled, evenly-temperated drinking water at his place of work, appreciates the same service in his home. While equipment for water-cooling in homes has not reached the state of development that has been reached in industrial and public use, there is equipment that can be adapted to this service. Without doubt the developing of the equipment for this purpose will be greatly accelerated.

### Beverage Cooling

The fourth division—beverage cooling—is constantly growing. In the past the cooling of beverages required the use of ice in considerable quantities. With the development of beverage dispensing devices of the draft or tap type, there has come a strong demand for

mechanical cooling equipment. Beverages of nearly every type—ginger ale, near beer and fruit juices—are being dispensed in thousands of stores in every large city in the United States. The amount of beverages sold on draft throughout the United States amounts to startling figures and is increasing every year. Manufacturers of beverages have followed with great interest the development of electric refrigeration because they realized that the time would soon be at hand when it would be more economical and practical to cool beverages automatically. One manufacturer of ginger ale reports that his firm alone sold nearly 1,500,000 gallons of draft ginger ale in 1929.

In addition to the market for beverage-cooling equipment in this country, there is the large market for similar equipment in foreign countries. One manufacturer of beverage coolers in its first year in business sold more than three thousand beverage-cooling units to foreign countries. That was two years ago. The South and Central American as well as the Central European countries represent a wide market for beverage coolers.

Considering the water-cooling market from every angle, it is logical to conclude that in 1930 the distributor of electric refrigeration will find a greater demand for liquid cooling equipment than ever before. This demand will be a very definite one, and one which the industry is better able to meet in 1930 than it ever has been in the past, because of the great strides that have been made during the past two years in devices for cooling liquids. There is equipment available that will cool practically any quantity of any liquid, and it may be adapted to almost any type building or service. Truly it is a long step from the days when ice had to be carried to every floor of an office building, and when factory workers were forced to drink the water as it came from the city mains.

### DOLAN CLOSES \$250,000 KELVINATOR ORDER

Detroit, Mich.—Henry A. Dolan, formerly president of the International Kelvinator Sales Club, and now sales manager of the Boston Branch, was a recent visitor at the Kelvinator factory, bringing with him Mr. Attmore, of the Boston Branch, and Morris Rudnick, a prominent business man. Mr. Dolan brought to Detroit a signed contract for Kelvinator equipment in the 407 stores of the Economy Grocery Store Chain in Massachusetts, operated by J. R. Rabinowitz. The order amounts, approximately, to \$250,000.

## DOUBLE PURPOSE SERVED BY G. E. WATER COOLER

Hartford, Conn.—Freeing pitch from spectacle lenses is one of the jobs of a General Electric DB-1 bottle water cooler now being used in the shop of Harvey & Lewis, local opticians; its other job is to supply drinking water.

Pitch is used to hold the lens in an iron frame during both the grinding and polishing operations. After these operations are finished it is necessary to free the glass from the pitch and cold water is applied to it. This causes the pitch to harden and shrink from the glass.

Prior to the installation of the bottle water cooler, Harvey & Lewis used an ice-water cooler, dipping the frames directly into the cooler. This left the water dirty and unfit for drinking purposes. The new cooler overcomes this handicap, the bottle holds fresh drinking water, while the waste receiver contains enough water to permit the dipping of the lenses. In addition to the shrinking of the pitch, cold water is also necessary for shrinking of composition celluloid spectacle frames; the frame is heated and then dipped in water, causing it to hold the lens firmly in place. The installation was made by Newton-Parsons Co., Connecticut distributors.

## SERVEL EQUIPMENT IN N. Y. VEHICULAR TUNNEL

New York, N. Y.—An interesting installation recently made by Servel Sales, Inc., is that in the Holland Vehicular Tunnel, which carries vehicle traffic from New York City to New Jersey under the East River.

Ventilation in the twin tubes of tunnels is a prime necessity because of the presence of poisonous gases from automobile exhausts, and the air is changed 42 times every hour.

This change is made from ventilating towers placed in the river, built on bed-rock, and which project above the water surface. Each of these towers, as well as the headquarters building on New York and New Jersey side of the river are equipped with standard Servel water coolers.

Servel also furnished water cooler equipment for the New York Life Insurance Company in the new building recently completed on the old Madison Square Garden site, New York.

# More Sales Records are smashed by Electrolux Distributors

From three widely separated cities come stories that show a significant speed in Electrolux turnover



A tiny gas flame takes the place of all moving parts

WE'VE been telling you the story of the strong, nation-wide swing to Electrolux, the Gas Refrigerator. How New York, Chicago and other large cities are voting Electrolux in with large, growing orders.

Now come three more stories from cities in widely scattered parts of the country that repeat the same amazing tale.

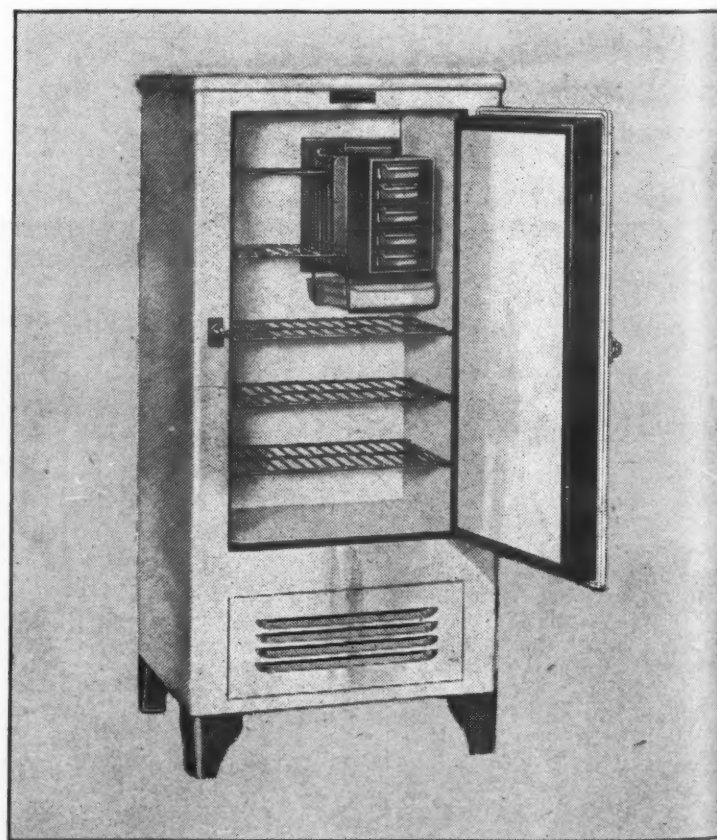
In Minneapolis, five men made 226 Electrolux sales in the two months of September and October. An average of five refrigerators a week for each man.

In Birmingham, one man sold 393 Electrolux Refrigerators in less than six months—an average of over fifteen a week for the whole period.

In Boston, one company made 174 Electrolux sales in a little over three weeks—October 7 to 31 inclusive. This is an average of almost eight refrigerators a day for each working day.

Electrolux sales achievements like these are becoming the rule. They're being made today in cities scattered all over the United States. Tomorrow they'll be even larger.

A millionaire's fortune is being spent in advertising to tell every housewife in the country that Electrolux is silent . . . amazingly inexpensive to operate . . . and gives steady, constant cold with perfect food preservation. The market is unlimited . . . and franchises are still available. Get your share of this fast-increasing business. For information, write, wire or phone Electrolux Refrigerator Sales, Inc., Evansville, Ind.

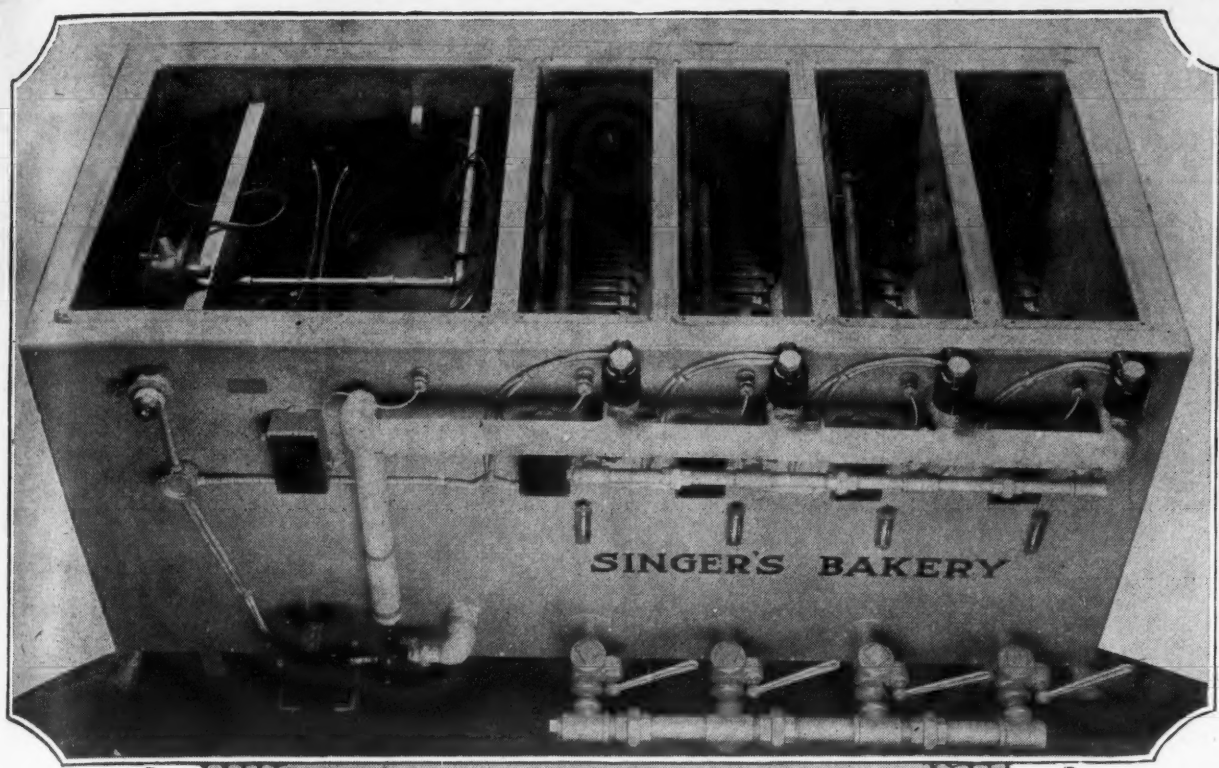


NOISELESS . . . AMAZINGLY INEXPENSIVE to operate. These two facts are prime reasons for the great and growing acceptance of Electrolux Gas Refrigerators. Hostess Model, one of the most popular sizes, is shown above.

# ELECTROLUX THE Gas REFRIGERATOR



## Refrigeration for the Baker



### WATER COOLING SYSTEM BELONGS IN MODERN HOME

By J. Edw. Tuft

THAT the time has come to push the sale of electrical water coolers in homes costing from eight thousand dollars up—in other words, that the time has come to talk *complete refrigeration* to the builders of the better homes—is the opinion of F. A. Kraft, sales manager for A. B. Crawford, Frigidaire dealer at Alhambra, California.

"In the next twelve months we expect to place water cooling equipment in a great many homes," said Mr. Kraft; "as a matter of fact, we expect to sell such equipment to practically every home builder to whom we sell electrical refrigeration, providing the home is one costing above eight thousand dollars.

"We avoid as much as is possible all discussion of price when selling water cooling equipment. Of course, we do not refuse to tell the cost if asked, but, so far as possible we try to minimize the thought of cost in the customer's mind and magnify the thought of convenience. Our aim is to show the customer that he is building a house that deserves to be made as modern as it is possible to make it. We try to show that complete refrigeration is coming rapidly in the better homes, and that he would be making a mistake to put his money into a home without anticipating the future and providing for it.

"If we must discuss price, we show him that the cost of complete refrigeration is such a small part of the whole cost of a home like his that he can hardly afford to leave it out.

"The same argument that is advanced for electric refrigeration and the preservation of food can be advanced for artificially cooled water. That is, the argument of health. It is not difficult to show the customer that the United States Government bulletins urge the cooling of water to a temperature of from fifty to fifty-five degrees. Absolute protection cannot be assured when the food is protected and the drinking water not protected.

"There is a large field among present users of electric refrigeration for the sale of water cooling equipment. The person who has used an electrical refrigerator for a year or more could no more go back to ice refrigeration than an automobile driver could go back to the use of a horse and buggy. He has developed a taste for modern conveniences. He is the person who will appreciate readily the value of properly cooled water and he is the person who will be the most susceptible to argument. When his electrical refrigerator is fully paid for he is in position to modernize his house more thoroughly. Furthermore, contact with him has been made and he knows the firm with which he has dealt as well as the quality of the merchandise he has already purchased. If it is all right to mention ice when talking about iceless refrigeration, let me say that with him the ice is already broken, an introduction is not needed; the approach is easy. He should not be neglected as a prospect for water cooling equipment.

"The sale of water cooling equipment in business places should be pushed. The trend of modern life is for comfort and convenience. The salesman and the dealer should keep thoroughly abreast with the times and lose no time in living up to the sales possibilities of the present."

### Accuracy Essential in Measuring Water

THE heavy duty water cooler illustrated here has been installed in Singer's Bakery by Domestic Utilities, Baltimore, Md., a division of the Refrigeration Corp. of Maryland. This cooler, equipped with a Kelvinator WB unit, was designed to meet the demand for a large amount of cold water. In analyzing the bakers' requirements, it was found that they needed a large volume of water, measured in pounds, for mixes, which they termed batches.

This model has four compartments that will take care of the water demands for four mixes, 180 lbs. of water each, in quick succession, and each compartment is set to admit just the number of pounds of water that the baker desires for each mix.

The brine circulating system cools the compartments, and a large brine hold-over in the end is used to store up refrigeration during the idle time of the day. As soon as one compartment is drained, the magnetic brine valve opens and starts the brine circulating pump, which circulates the cooling medium in that compartment until the temperature of the fresh water in it is reduced to a desired temperature. The magnetic brine valve is then closed by an adjustable temperature control governing that compartment.

One can easily see in the photograph the chilling sections in each compartment. Incoming warm water sprayed into each section runs over these chilling elements. With 20 deg. brine, the temperature of the water can be reduced from about 80 deg. to 36 deg. in slightly more than twenty-one minutes.

The large valves near the bottom, with handles upright, are the dumping valves. This cooler is placed on the floor immediately above the mixer. All the baker has to do is to pull the handle and the cold water is dumped directly in the mixer where scales are used. Ten to sixteen batches are now being cooled daily in this model.

### W. L. LEWIS ADVANCED BY CLEVELAND DISTRIBUTOR

Cleveland, Ohio—W. L. Lewis has been appointed educational director of William F. Gray, Inc., Frigidaire distributor for northern Ohio. He has been with the Cleveland company for the past two years in a sales supervisory capacity.

Mr. Lewis is well known in the electric refrigeration field, having previously been associated with Copeland at Detroit as a field representative; also with Absopure at Detroit, in a similar capacity. Prior to those connections he was a veteran of the National Cash Register Company sales organization.

For some time he was also general sales manager of the American Cash Register Company. He is now conducting periodic one-day courses for new salesmen; also five-week night courses.

Mr. Lewis says, "Making the students work is the secret of sales school success. During our week's day school we give four strenuous examinations that make them work. I find that if young men are selected carefully, the percentage of failures can be reduced to ten per cent."

### RADTKE NAMED MILNOR COMMERCIAL MANAGER

Cincinnati, Ohio—Art Radtke has assumed the position of commercial manager for Milnor Refrigeration Co., General Electric distributor.

### VERNOR GINGER ALE CO. ORDERS TEMPRITE UNITS

Detroit, Mich.—The James Vernor Company of Detroit, manufacturers and distributors of ginger ale in Detroit and several other cities, is abandoning the use of cracked ice for cooling draft ginger ale, and is planning to install a specially designed cooling unit. The new unit is being manufactured by the Liquid Cooler Corporation, also of Detroit, and was designed after considerable study by both Vernor and Liquid Cooler engineers.

An initial order for 200 units has been placed and a contract concluded covering requirements for the next four years. The Temprite cooler supplied for the Vernor Company's requirements is a modification of the Temprite No. 35 unit. It is fitted with a temperature control valve which in this case is set to deliver ginger ale at 35°. A refrigerant coil below the unit is installed which surrounds a small specially designed settling tank (a part of Vernor's dispensing unit), which maintains a low temperature after the ale passes through the cooler. The method of handling the cooled liquid assures draft temperatures below 40° at a rate of 5 large glasses to the minute.

The new unit also may be duplexed on the compressors of ice cream cabinets and soda fountains. Although the compressor is operated at a temperature of 0°, the cooler design assures a definite desired exit temperature of the ginger ale.

### CHANGES IN PARKER ICE PERSONNEL

San Bernardino, Calif.—L. C. Williams, formerly general sales manager of the Copeland California Sales Co., has been appointed Los Angeles sales manager of the Parker Ice Machine Co., 943 Third St. The Los Angeles address is 26 E. Santa Fe.

Tom Worthington will be placed in charge of all San Diego sales of the Parker Co., beginning February 1. D. A. Mitchell will remain with the San Diego branch as manager and will handle the engineering and mechanical end of the business.

Harry Colvin has been transferred from the local factory to the El Centro branch as manager. W. F. Spring, who has been in the Valley for the past year in charge of engineering, will now be in charge of sales.

### WRIGHT CO. COMPLETES \$250,000 SHOWROOM

San Antonio, Texas—Martin Wright Electric Co., local Electrolux dealer, has recently completed a new \$250,000 showroom. The structure is two stories in height, has a basement, and is entirely fireproof. It is built of white stone, set off with iron grille work.

The first floor, which has a large space extending across the entire front, is used to display the Electrolux units. Business offices are at the rear of the building. Individual display rooms branch off the main lobby.

The basement and second floor are used for stock rooms, work shops and planning departments. Each department of the company, such as vacuum cleaners and radios, is organized in separate quarters of the store.

Martin Wright, owner of the organization, is reported to have developed the \$700,000 a year business from a capital of \$124.

# Now--

## THE FINEST QUALITY APPARATUS FOR LOCAL ASSEMBLERS



### Compressor Units - Evaporators

Complete Range of Domestic and Commercial Sizes, 75 to 1100 lb. I. M. C.

With greatly increased manufacturing facilities, and extensive orders on hand to assure ample production and low prices, "M & E" solicits the business of local manufacturers, distributors, and others assembling electric refrigeration under their own trademarks. "M & E" equipment offers unexcelled advantages for this purpose and has a long and varied record of successful use. Of particular interest in the 1930 line is a small, compact, powerful, and quiet unit . . . at an amazingly low price for a quality product.

Immediate delivery. Write or wire for literature, specification and prices.

### MERCHANT & EVANS CO.

MAIN OFFICES

2035 WASHINGTON AVE. PHILADELPHIA

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## LACQUERS ENAMELS

A Lacquer Finish that Has Stood the Test

### M & W REFRIGERATOR LACQUER ENAMELS

A Quality Reputation on these products has been established through actual large quantity production on Cabinets widely distributed throughout the world. Another complete M & W Finish including either Lacquer or Oil Primer followed by M & W Lacquer Enamel in White or Colors.

We invite your correspondence regarding your particular problems.

### MAAS & WALDSTEIN CO.

Executive Offices and Plant, 438 Riverside Avenue NEWARK, N. J.

Chicago Office and Warehouse 1115 Washington Blvd. West

Los Angeles Office and Warehouse 1214 Venice Blvd., Los Angeles, Calif.



## The SUPER

Automatic Oil Heater is low in first cost. It is economical to operate. It enables you to sell two lines on one overhead.

Write for our Authorized Distributor Plan.

THE SUPER OIL HEATER CO. PAWTUCKET, RHODE ISLAND



# Small Electric Refrigerating Units Make Properly Cooled Water Available

## Lambert Field Provides Cool Water for Patrons on Hottest Summer Days



Refreshing cool water from a General Electric cooler appeases the thirst of air-minded passengers who await their ships at the T. A. T. terminal, Lambert Field, St. Louis, Mo.

## Sell Every Market with Universal Coolers



A typical Universal A & P installation



A typical Universal florist shop installation

**T**HE unusual completeness of the Universal Cooler Line, embracing compressor and condensing units from 1-6 h.p. to 11-2 h.p. in capacity, enables Universal Dealers to successfully cover every phase of domestic and commercial refrigeration.

Universal Coolers have been on the market for over eight years and the full line includes: household cabinets from 4 to 15 cu. ft., ice cream cabinets, water coolers, in addition to special units for all commercial purposes.

Complete information upon request

**Universal Cooler Corporation**

Detroit, Mich. - - - Windsor, Ontario, Canada

### OFFICE SPACE INCREASED BY FLORIDA REFRIGERATION COMPANY

St. Petersburg, Fla.—Florida Electric Refrigeration Co., Florida Theatre Building, has increased its office space and now occupies the entire fourth floor of that building.

Since the expansion, the Refrigeration Institute of the company occupies the complete space of which it was formerly a part. The Sales and Auditing Departments have been enlarged, a new suite of offices are now occupied by G. S. Patterson, president, and C. E. Roesch, vice-president and director of sales. These are in connection with conference and reception rooms.

### KANSAS ST. JOHN'S COLLEGE EQUIPPED BY McCRAY

Winfield, Kansas—St. John's College recently added a special McCray storage cooler, 10 feet by 7 feet by 7 feet 6 inches, to its equipment. This storage cooler, which was installed by the McCray Kansas City branch, is cooled by a Frigidaire Model C, 1 h.p., using two No. 302F coils.

In addition to the cooler, St. John's is using a McCray refrigerator which is cooled by the same condensers, using a 17-foot coil. The College is now equipped throughout with McCray refrigerators.

### SERVEL

SERVEL'S water coolers for 1930 have been redesigned to include simplicity of installation and adjustment, lower heat leakage, greater supply of cooled water stored, positive control of water temperature and more even load on the machine unit.

These changes have been secured by a new type of cooling system. Water from the pressure system passes into the top of a cylindrical steel drum, which holds about one gallon of water. Wrapped around the drum and in close contact with it, is a copper tubing coil containing the refrigerant. The flow of refrigerant to the coil is governed by an adjustable expansion valve and the machine operation is controlled by a thermostat, whose bulb extends into a well in the lid of the cooling cylinder. Both the valve and the thermostat are easily accessible by removing cap on top of cabinet. All piping carrying water is brass, and the tank and lid are lined with vitreous porcelain.

Three types of coolers are furnished, one with bubbler, faucet and drain basin; one with faucet and drain basin, and one with bubbler and drain pipe. Basins are porcelainized, and all exposed metal fittings are chromium plated. If desired, the cooler can be furnished without fittings, allowing the user to attach any type desired.

The machine unit is a Servel 14-A with a 1/6 h.p. motor, which has a capacity of about 3 gallons per hour at a 30° temperature reduction.

The shape of the water cylinder allows 2 inches of cork at the sides and top, increasing to about 5 inches at the corners. The exterior is finished in 5-coat lacquer, in mahogany, olive green, or white, as desired. Dimensions of all coolers are the same—21½" wide, 21½" deep, and 45" high. The porcelain basin adds 7" to the width. These models have been designed to meet the needs of most water cooler users.

### FILTRINE

**T**HE new 1930 line of self contained and remote type coolers manufactured by the Filtrine Manufacturing Company, 53 Lexington Ave., Brooklyn, N. Y., shows changes in design of the self-contained models with the view of conserving floor space and increasing capacity as well as the addition of the number of new models.

The self-contained direct connected type cooler is of filing cabinet size and design, finished in lacquer tones. It is offered to meet the increasing demand for office coolers to blend in with office equipment.

Two of the new small, remote models have two and four gallon reservoir, respectively. These are designed for use either with individual refrigerating machines or for multiple installations, home use, etc.

The Filtrine line of coolers now contains self-contained cabinets, remote coolers and coolers for use in circulating drinking water systems.

The line of Filtrine filters, designed for use with any electric cooler and for circulating drinking water systems is available without change.

### UNIVERSAL COOLER

**U**NIVERSAL Cooler Corp., Detroit, Mich., offers a line of water coolers that can be adapted to either the pressure or bottle water types of cooling.

These coolers have the Universal expansion coil for direct cooling. This coil is heavily tinned and is immersed directly into the water in the cooler. The cooling effect of the refrigerant is thus applied direct to the water. Single or multiple installation of these coolers can be made, the size of the condensing unit being determined by the coolers used and the water cooling load.

### STORAGE WATER COOLERS SUPPLY LARGE BUILDING

Los Angeles, Calif.—The water cooling installation in the new Wilshire Professional Building is reported to be the first complete multiple storage water cooler system ever installed in a building of this height. The distance from the top cooling tank to the compressor units is over 140 feet.

The storage cooling tanks are the patented Day and Night Storage Water Coolers, manufactured by the Day & Night Company, of Monrovia, Calif. The installation was made by the Collins Kelvinator Corporation of Los Angeles.

The entire system is operated by two one-horsepower units, located in the sub-basement. Bubbler fountains are provided in public lobbies on every floor. Water is delivered to all outlets at a temperature of 39 degrees.

### SPECIAL TRAIN TO CARRY CLEVELAND FRIGIDAIRE MEN TO MEETING

Cleveland, Ohio—Frigidaire dealers and salesmen operating under the distributorship of William F. Gray, Inc., announce that they will take a special train to the Detroit Frigidaire convention to be held on February 4.

It is planned to send 300 from the Cleveland area, which includes 22 counties in northern Ohio. Everybody, except telephone operators and enough personnel to take care of possible emergencies, are going.

### TWO PARKER SALESMEN HIT \$75,000 IN 1929

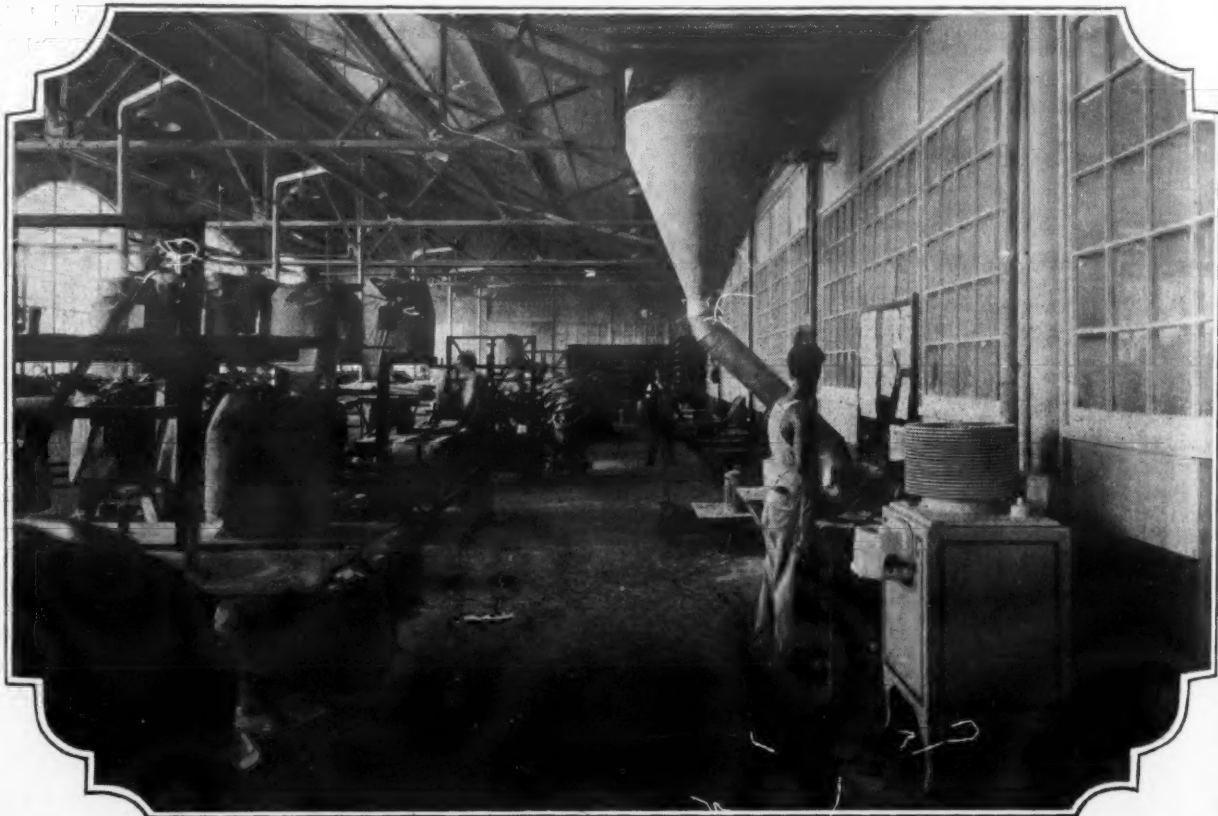
San Bernardino, Calif.—Three local salesmen of the Parker Ice Co., R. E. Ames, G. J. Park and Ed Doyle, each sold 100 per cent of the quota established for the year 1929. Ames and Park tied for honors as high salesman of the Parker organization, each closing over \$75,000 in retail sales during the year.

### SOUTHERN MEN VISIT KELVINATOR PLANT

Detroit, Mich.—T. P. Hallock, district manager in the Georgia, Florida and Alabama territory, was a recent sojourner at the Kelvinator factory.

From the Southland also came Tom May, field service man, who was here December 27-28.

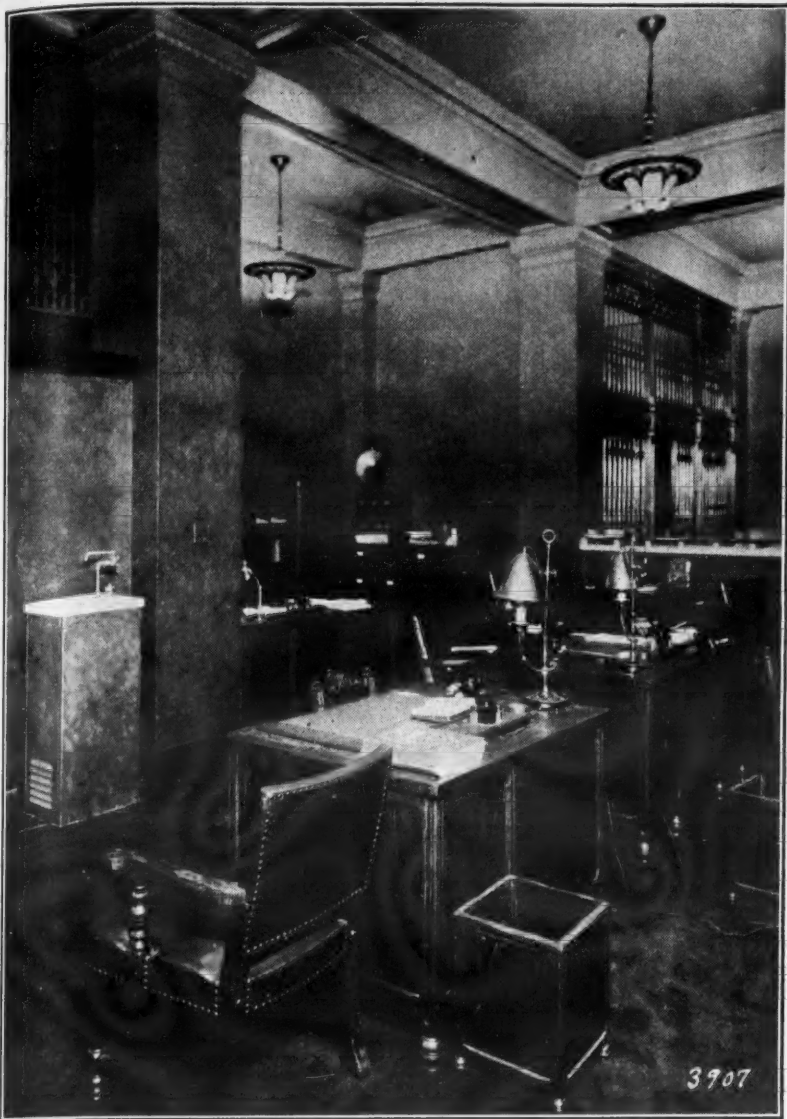
## Factory Workers Know Benefits of Cooled Water



General Electric Unit which cools drinking water for employees of the Pacific Factory of the Goodrich Rubber Co., Los Angeles, Calif.



## in Various Types of Buildings



RECOGNIZING the fact that properly cooled water means better health, modern business offices are installing coolers wherever they can do the most good. Even in luxuriously furnished offices the water cooler is finding a place. The photograph above shows one of five Frigidaire coolers which do daily duty in the offices of the Fidelity Trust Company of Detroit.

The cooler shown is in the bond department and the cabinet has been painted to match the tinted wall against which it stands. It fits into the picture just as easily as the massive desks and chairs.

### WAGNER MAKES CHANGES IN BRANCH PERSONNEL

St. Louis, Mo.—Wagner Electric Corporation announces the transfer of L. J. Dicianne from the position of branch manager of the Minneapolis office to the branch managership of the Kansas City office, and the appointment of Major Elam as branch manager in Minneapolis territory.

Mr. Dicianne is a graduate of Cornell University. He joined the Wagner Electric Corporation immediately upon graduating, first taking the Wagner student course in the factory and sales offices. His first appointment with the company was that of office manager at the Chicago office, and later a salesman in the Iowa territory. During the past

four years he served as branch manager of the Minneapolis territory.

Ever since leaving college, Major Elam has been active in the electrical industry. Before the World War he was power engineer of Central Illinois Light Company of Peoria, Ill., and immediately upon the entrance of the United States in the war he joined the Officer Corps of Engineers of U. S. Army. In 1922 he again assumed the office of power engineer of the Central Illinois Light Company of Peoria, Ill. He joined the Wagner Electric Corporation in 1927 as a salesman in the St. Louis territory, from which position he was transferred to Minneapolis office.

## Protect the refrigerators in your warehouse with Webb Storage Jackets

Unrated refrigerators, in your warehouse, if uncovered, soon collect a coating of dust and grime. In wiping this off, the fine finish of the refrigerator is likely to be scratched—the fresh, new appearance destroyed.

Webb Storage Jackets will prevent this. These rubberized flannel covers effectively protect the refrigerators against dust, dirt and dampness. Each jacket has a pocket with a celluloid window, allowing the insertion of a card describing the type of refrigerator.

Webb Storage Jackets—made by the makers of the Slingabout for the safe delivery of refrigerators—are inexpensive, and are a real economy. Write for prices, giving the name of the refrigerator you handle.

**CHARLES J. WEBB & COMPANY**  
116 Chestnut Street, Philadelphia, Pa.

.12 to .08

## An important symbol for manufacturers, dealers, customers

POINT-ONE-TWO to POINT-O-EIGHT is the engineers' symbol for the most important new development in electric refrigeration. It points the way to more efficient refrigerators, manufactured at lower cost, selling at lower prices, operating at less expense to the user.

Point-One-Two to Point-O-Eight is the degree of Cabinet Efficiency which guarantees to your customers the maximum results they should have from your refrigerating machine.

Refrigerators having this efficiency maintain more even, lasting low temperatures. Their manufacturing cost is lower—because smaller, less expensive motors and machines maintain the required amount of refrigeration.

To the manufacturer—Point-One-Two to Point-O-Eight Cabinet Efficiency brings the opportunity to reduce overall manufacturing cost and increase pride in his product.

To the dealer—Point-One-Two to Point-O-Eight Cabinet Efficiency means better refrigerators selling at lower prices.

To the user—Point-One-Two to Point-O-Eight Cabinet Efficiency means permanent refrigeration at lowest operating cost.

Point-One-Two to Point-O-Eight Cabinet Efficiency can be secured by using a two to three inch thickness of easily installed Dry-Zero—the most efficient commercial insulant known. The chart below tells the story of Dry-Zero's QUALITY.

### ACTUAL VALUES

from tests by impartial authorities such as U. S. Bureau of Standards, Armour Institute, State Universities, etc.

MATERIAL	WT. CU. FT.	INSULATION VALUE	ABSORPTION*
DRY-ZERO.....	2 lbs.	4.15 to 4.3	14
Corkboard.....	9.5 to 13 lbs.	2.9 to 3.3	28
Wood fibre board.....	13 lbs.	2.9 to 3.2	115
Flax fibre board.....	13 lbs.	3 to 3.2	66
Cane fibre board.....	15 lbs.	2.7 to 2.9	78
Mineral wool slab.....	17 lbs.	2.6 to 2.8	

\*Tests run by University of Minnesota

DRY-ZERO CORPORATION, 130 North Wells Street, Chicago, Illinois

# DRY-ZERO

the most efficient commercial insulant known



## GET TEST FACTS

and get the essential facts accurately!  
Experience only, teaches whether you are trying to measure a city block with unnecessary micrometric precision, while completely missing essential basic facts.  
You are welcome to visit our laboratory at any time.

GEORGE B. BRIGHT CO.  
Refrigerating Engineers & Architects  
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## NOW!

You can sell those  
big prospects who  
have no electricity.  
Fill their orders  
with



### Gas-Engine Driven Units

For commercial use, in dairies, country stores, plantations, summer resorts, on fishing boats, export work, etc.

The standard Frick Unit with gasoline engine in place of the usual motor.

Floor space required only 3 ft.-8 in., by 1 ft.-6 in. Operates semi-automatically.

Write for full details

**Frick Company**  
WAYNESBURG, PA., U.S.A.  
ICE MACHINERY SINCE 1892

## When Cool Water is Available Production Figures Show Gains

By L. K. Wright, Mem. A. S. R. E.

LARGE industrial plants have come to the realization of the necessity for providing more healthful conditions for workmen; and one of the most important of these is the supplying of cooled water. The human body is composed of about seventy per cent water, and this watery balance must be maintained within narrow limits if a person is expected to be in the best physical condition. Workmen should be encouraged to drink often in moderate quantities.

Under ordinary conditions of temperature and relative humidity the following table gives the requirements of persons employed in various capacities:

#### Water Quantities Required

Person	Per 24 Hours
At rest	2 quarts
Ordinary activity	3 quarts
Hard work	5 quarts

With high temperatures and low relative humidity, the following table should be employed:

Person	Per 24 Hours
At rest	4 quarts
Ordinary activity	6 quarts
Hard work	10 quarts

#### Actual Water Requirements

The foregoing water requirement tables are based on actual consumption, but with a drinking water installation it will be found that considerable water is wasted. It will be found that more water is wasted than actually consumed, due principally to the fact that the water standing in the small connecting lines is warm. The fountains must be located in such positions so that a minimum of connecting pipe is required to join it to the main supply line.

To estimate a water cooling job, secure the following information:

1. Number fountains.
2. Number and type of workers or persons using fountains.
3. Locations of fountains, lengths of pipe between each, and distances between floors.
4. Water temperature desired.
5. Water supply temperature.
6. Water supply pressure.
7. Location of machine unit and water pump.

This data is necessary for the proper design and installation of the cooling system and it is presupposed that the system required will be of the small, self-contained and portable cooling unit class. It will also be assumed, besides eliminating the small portable units, that the "dead end" type of installation will not be considered, due to poor delivery, excessive water consumption and indifferent results. The system considered most efficient and applicable to any water cooling job, regardless of size, is the "circulating system," which will be described.

The following table gives the quantity

Office Buildings	1 gal. per hour per 8 persons
Factories	1 gal. per hour per 4 persons
Rolling Mills, etc.	1 gal. per hour per 3 persons
Restaurants	1 gal. per 10 persons served
Hotels	1 gal. per hour per 5 persons
Public Parks	1 gal. per hour per 5 persons
Theatres	1 gal. per hour per 75 seats
Hospitals	1 gal. per hour per 10 persons
Schools	1 gal. per hour per 8 students
Fountains	40 gals. per hour

#### MANUFACTURERS OF

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Guards—to enclose units.  
For Household Refrigerators we make outside steel panels, food compartments, etc.  
Ice Cream cabinets and parts.

MOTORS METAL MFG CO.  
5936 Milford St. - Detroit, Mich.

apportioned to installations supplying different types of persons and under various conditions:

With refrigerated drinking water systems, a pump is utilized to maintain a constant circulation of cold water through the mains; this, with a cooling tank, which serves as a reservoir, keeps the temperature of the water almost constant.

Two quantities of water are figured, one of the quantity used as per the table, and the quantity for circulation, which depends upon the length and size of the water pipe lines. The second, the circulating fluid, serves the purpose of taking care of heat leakage through the insulation of the pipes and also of the friction of water through the pipes.

may be carried beyond a desired point. Pipe mains should be as near the fountains as possible to eliminate dead ends where the water will warm up and thus increase wastage.

A good practice is to base the pipe size on a friction loss of not over 7 pounds per 100 feet of pipe.

#### Drinking Water Temperatures

The best temperature for drinking water is around 55° F. In estimating the circulating water, figure a rise of 5° through heat leakage; the water being started from the cooler at 50° F.; average temperature, therefore, being 52.5°. In the Roosevelt Hotel, of New York City, drinking water is delivered at 42°, and returns at a temperature of 47° F.

#### CORK INSULATION FOR COLD WATER PIPE

Size of Pipe, Inches	Transmission B. t. u. per lineal foot per degree per 24 hours	Outside Diameter of Cork Cover when applied to pipe	Thickness of the Insulation
1/2	3.84	3.25	1.20
3/4	4.00	3.75	1.35
1	4.26	4.25	1.47
1 1/4	4.78	4.62	1.48
1 1/2	5.27	4.75	1.42
2	5.88	5.31	1.47
2 1/2	6.98	5.62	1.37
3	7.30	6.62	1.56
4	8.29	7.87	1.68
5	9.84	8.87	1.66
6	10.49	10.25	1.81
7	12.05	11.12	1.75
8	13.41	12.87	1.93
10	14.79	14.62	1.93

(Above based on "Ice Water" thickness)

Example: How many B.t.u. will leak through 1,000 feet of 1" pipe in 24 hours, insulated with the standard thickness of cork covering used for cold water pipes; the atmospheric temperature being 90° F. and the average cold water temperature being 52.5°?

Answer: Heat leakage through the cork cover is 4.26 B.t.u. per 24 hours per

As per the example, the heat leakage was found to be 159,750 per 24 hours, or 6,656.25 B.t.u. per hour. One cubic foot of water at 50° F. weighs 62.41 pounds and there being 7 1/2 gallons per cubic foot, one gallon will therefore weigh 8.33 pounds. As it takes one B.t.u. to raise one pound of water 1° F., to figure a rise of 5° there must be circulated through the system

6656.25 = 1,331.25 lb. of water per hour,

5 or 1331.25 = 161 gal. per hour,

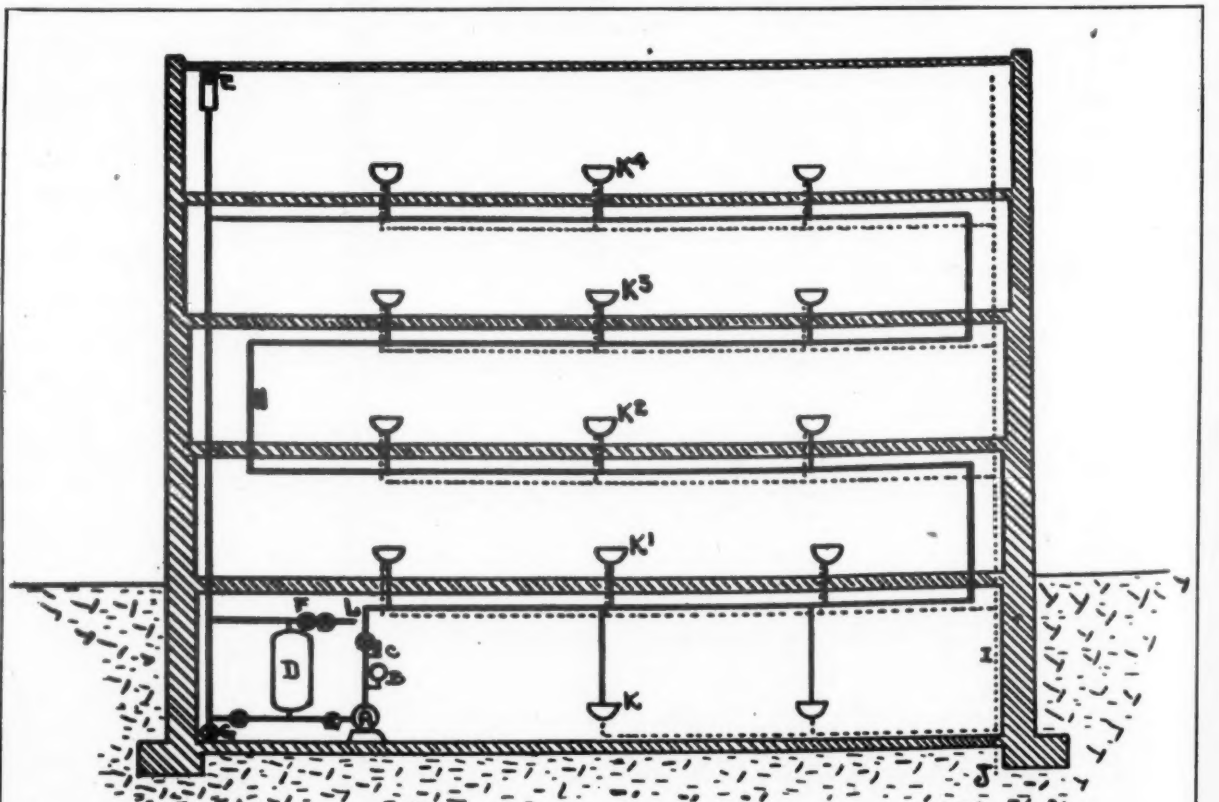
8.32 or 161 = 2.22 gal. per minute.

#### Pump Power Requirements

The power consumption due to friction and heat leakage through the tank insulation must also be considered in order to figure the quantity of circulating water and the size of the refrigeration unit. This usually is figured as 10% of the heat involved in circulating the water, to take care of heat developed through friction of the circulation. This increases the quantity of the circulating water. The heat leakage of the tank may be placed at 5% of the total heat involved in circulating and make up water used.

The tank coils as well as the tank should be galvanized. The water pipe system should be of brass or of galvanized pipe and fittings.

#### System for Building Four Stories High



- Waste Line
- Cold Water Line
- Valves
- A Water Circulating Pump
- B Pressure Gauge
- C Thermometer
- D Storage and Chilling Tank
- E Air Vent
- F Pressure Reducing Valve
- G Drain Valve

- H Water Delivery Line
- I Drain Main
- J Sewer
- K Drop Type Installation
- K1) Riser Type Installation
- K2)
- K3)
- K4)
- L Water Main

## Electric Refrigerator Truck Specialists

During the past five years we have handled over 28,000 electric refrigerators in the New York Metropolitan area.

### We Are Expert Handlers —All Sizes—All Makes

For electric refrigerator manufacturers—distributors, and dealers doing business in Westchester County and Greater New York City—we offer a service that includes unloading from freight cars to warehouses and delivery to individual homes and apartment houses in the most modern padded vans.

## SUNSET

EXPRESS & TRUCKING CO., INC.

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New York City

Warehouse  
302 E. 61st St.  
New York City



**Example:** Figure plant for a factory of 4 floors, 225 people each floor. The total of 1" pipe mains and risers is 1,520 feet, and 165 feet of 3/4" pipe connections from mains to fountains. There will be 6 fountains on each floor. City supply water at 80°, atmospheric temperature 95°.

**Answer:** Make up water =  

$$\frac{225 \times 4}{4} = 225 \text{ gal. per hour,}$$
 or  

$$\frac{225}{60} = 3.75 \text{ gal. per minute.}$$
 Gal. per hour  $\times$  Wt. per gal.  $\times$  (Supply Water Temperature-Cooled Temperature)  

$$225 \times 8.33 \times (80-50) = 56,160 \text{ B.t.u. per hour.}$$

**Circulation Water:**  
 165 feet of 3/4" pipe  
 $(95-52.5) \times 4 \times 165 = 11,440 \text{ B.t.u. per hr.}$   
 adding 10% for heat from friction  
 $(1167 + 11440) \times 1.1 = 333.3 \text{ gal. per hr.}$   
 $5 \times 8.32$

**Total Water:**  
 $333.3 + 225 = 558.3 \text{ gal. per hr.}$   
 $558.3 = 9.305 \text{ gal. per min.}$

**Refrigeration:**  
 Heat from Make up  
 Water ..... 56,160 B.t.u. per hr.  
 Heat, 1167 + 11440 B.t.u. per hr.  
 $68,767 \text{ B.t.u. per hr.}$   
 Plus 5% (Heat leak of tank) ..... 3,438 B.t.u. per hr.  
**Total Heat.....72,205 B.t.u. per hr.**  
 $72205 = 6.02 \text{ Tons refrigeration (Compressor rating)}$

#### Cooling Coil

For heat transfer through one sq. ft. of pipe surface, allow 9 B. t. u. per hr., per degree difference in temperature between ammonia and average temperature of water in tank. At 25 pound suction pressure ammonia temperature

#### FRICITION LOSS IN WATER PIPE IN POUNDS PER SQUARE INCH FOR EACH 100 LINEAL FEET

Gal. Per Min.	Size Pipe, Inch	Friction Loss, Per 100 foot of pipe	Per Elbow	Gal. Per Min.	Size Pipe, Inch	Friction Loss, Per 100 foot of pipe	Per Elbow
1	3/4	.80	0.017	19	1 1/2	3.43	0.143
2	3/4	2.00	0.042	20	1 1/2	3.80	0.150
3	3/4	3.50	0.074	21	1 1/2	4.13	0.173
4	3/4	5.00	0.106	22	1 1/2	4.50	0.188
5	3/4	7.60	0.161	23	1 1/2	4.90	0.205
6	1	2.50	0.077	24	1 1/2	5.30	0.222
7	1	3.50	0.108	25	1 1/2	5.70	0.249
8	1	4.50	0.139	30	2	2.09	0.127
9	1	5.70	0.178	35	2	2.76	0.176
10	1	7.00	0.217	40	2	3.68	0.226
11	1 1/4	2.90	0.084	45	2	4.60	0.288
12	1 1/4	3.43	0.099	50	2	5.61	0.353
13	1 1/4	4.00	0.116	60	2 1/2	2.70	0.258
14	1 1/4	4.70	0.136	70	2 1/2	3.46	0.342
15	1 1/4	5.50	0.159	80	2 1/2	4.62	0.452
16	1 1/4	6.20	0.179	90	2 1/2	5.96	0.573
17	1 1/4	6.95	0.201	100	2 1/2	7.36	0.738
18	1 1/4	7.75	0.224				

In coils will be 11.66°. The returning circulating water, consisting of 333.3 gal. per hr., will mix with 225 gal. per hour of city water at a temperature of 80°. The resulting average temperature:

$$(225 \times 80) + (333.3 \times 50) = 62.09 \text{ degrees}$$

The water leaving the tank at 50°, the average temperature in the tank will be:

$$\frac{62.09 + 50}{2} = 56.05^\circ$$

The total heat extracted was 72215 B.t.u. per hour. The necessary lineal feet of 1 1/4" pipe to cool the water and take care of all heat losses through insulation and friction:

$$\frac{72215 \times 2.3}{(56.05 - 11.66) \times 9} = 415 \text{ ft. of } 1 \frac{1}{4} \text{ pipe}$$

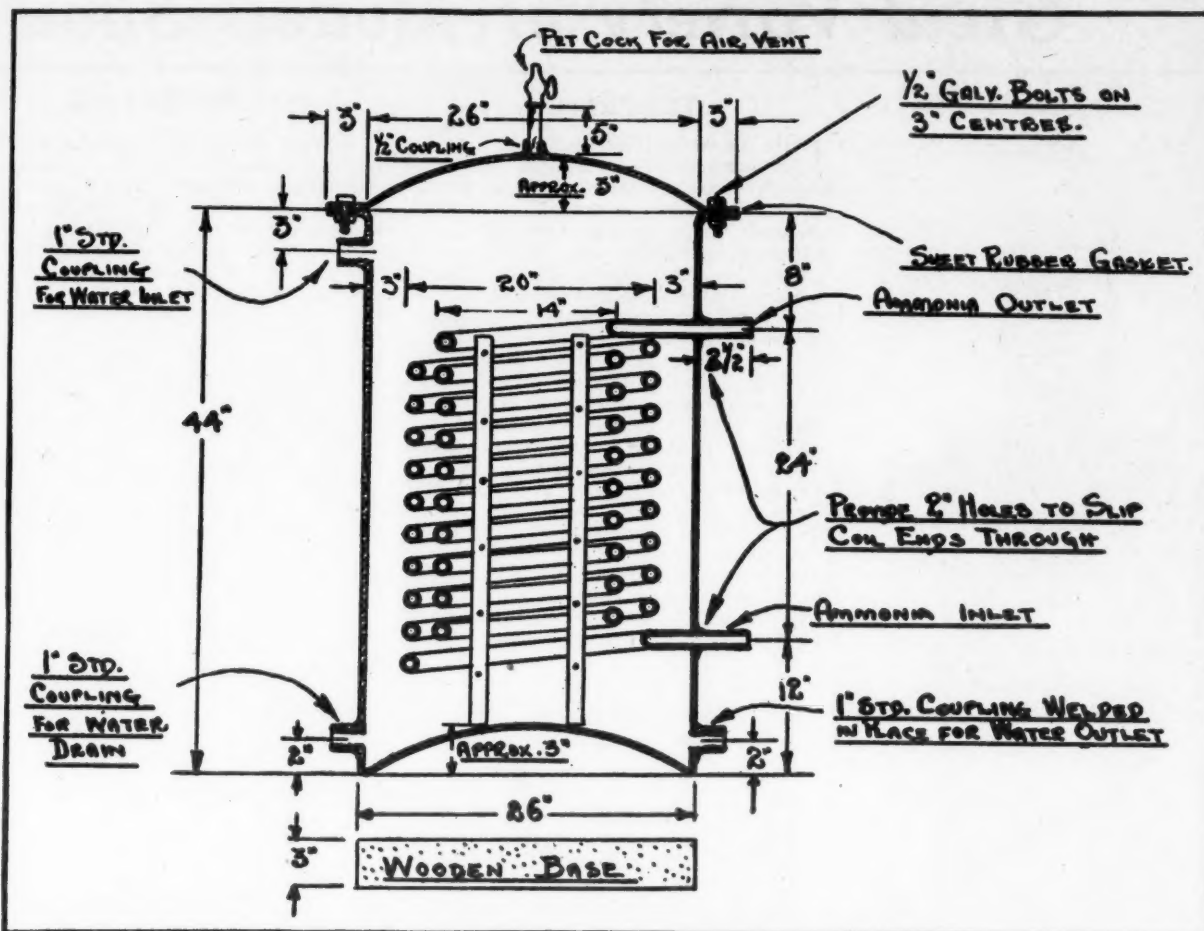
The pipe can be made up into two coils with ends passing up through stuffing boxes in top of tank. Each coil will have 20 turns of pipe, distance between each turn will be 2 1/2" center to center of pipe. One coil will be 3 ft. in diameter, the other coil 18 inches.

The water tank will be 42" in diameter and 90" high, exclusive of dished heads.

#### Water Pumps

Where friction head is not over 150 feet, centrifugal pumps are best. If direct connected the flexible coupling should be noiseless and the motor speed kept below a point where it will not hum. Speeds under 2000 r. p. m. are always satisfactory. The average cold water installation does not require a pumping capacity of more than 150 gal. per min. A centrifugal pump of this size is not very efficient (only 50 to 55%), but simplicity of operation, having only one moving part, no valves or piston, freedom from shocks due to uniform pressure and flow, and low first cost, make them the most popular.

### Water Cooling Tank of the Welded Pressure Type



The duplex double acting and the triplex single or double acting pumps are also much used, and when not operated too fast and fastened to a solid foundation, will operate quietly.

The simplex, single or double acting, can be used where quiet running is not essential.

The piston pump will usually operate with better efficiency than the centrifugal, as well as being better suited to installations where there are small quantities of water with head pressure of over 150 feet.

60% efficiency, the h. p. of the motor will be:

$$10 \times 8.32 + 118.23 \times 100 = 0.497 \text{ H. P.}$$

Due to operating at an underload the motor will probably be 75% efficient— $0.497 \times 0.746 \times 100$

$$0.75 = 0.495 \text{ kw. per hr.}$$

#### The Rapid Estimation of Small Drinking Water Systems

##### Average Equipment Requirements for Drinking Water Systems

Number of Employees	Max. Ft. Circulating System	Tonnage Machine
25-50	500	1/2
50-100	1000	1
100-200	750	1
200-300	1200	1 1/2
300-500	850	1 1/2
500-750	1000	2
750-1000	575	2

#### To Determine Size of Pump

Eight pounds of water (approximately 1 gal.) per person per 10-hour day will therefore equal number of persons. The pump should be capable of meeting maximum demand at any instant.

$$P = \text{gal. per min. to be circulated.}$$

$$10 \times 60 \text{ (P = Persons)}$$

Determine pipe size with view of using best size in order to eliminate excessive friction. Estimate total length of pipe, find friction head and 25% of friction head for bends and elbows, to which add the height of water pipe system, which gives total head.

#### To Figure Tank Capacity

$$P \times 3 = 500 \times 3 = 1500 \text{ (Example)} = 250 \text{ Gal.}$$

A tank of 250 gal. would be 30" diameter by 49" height, surface 32.1 sq. ft.

#### Machine Capacity

$$H_1 = 18.7 \times 500 = 9350 \text{ B.t.u. per hr.}$$

$$H_2 = (2.66 \times 1000 \times 4.26) + (9.33 \times 32.1) = 11964 \text{ B.t.u. per hour.}$$

The total heat requirements would be 21314 B.t.u. per hr., which would necessitate a two-ton machine.

The machine capacity will be determined by:  $H_1 + H_2$ , where  $H_1$  = Heat removed per hr. running time in cooling make up water from supply temp. to desired temp. Allow 8 pounds of water (1 gal.) per person per day.

$H_2$  = Heat removed per hr. running time that leaks through covering on pipe and tank.

$$H_1 = \frac{P \times 8 \times (T_s - T_c)}{R} = \text{B.t.u. per hr.}$$

$$P = \text{Number persons.}$$

$$8 = \text{Pounds water per person per 10 hr. day.}$$

$$T_s = \text{Temperature supply water.}$$

$$T_c = \text{Temperature cooled water.}$$

$$R = \text{Hr. running time per day under extreme conditions.}$$

$$H_2 = \frac{(L \times F \times T_d) + (S \times K \times T_d)}{R} = \text{B.t.u. per hr. heat leakage.}$$

$$L = \text{Length pipe in feet.}$$

$$F = \text{Pipe cover leakage factor in B.t.u. per 24 hour per lineal foot. (See table.)}$$

$$T_d = \text{Temperature difference between air and water in system.}$$

$$S = \text{Sq. ft. surface of cooling tank.}$$

$$K = \text{Leakage factor for cork cover on cooler, B.t.u. per 24 hour per sq. ft. per degree difference.}$$

$$R = \text{Hours of running time.}$$

#### Tank Design

A design which typifies the modern cooling tank is disclosed in the upper

selected from their list which approximates the desired size. This is productive of better design, a stronger vessel, assured delivery, and is infinitely cheaper than having the vessel constructed to order, to say nothing of the time involved in determining thickness of plate, radius of heads, radius of knuckle curves, etc.

#### To Determine Tank Size

The tank should hold at least a three-hour supply at the maximum rate of demand, or  $\frac{P \times 3}{10} = \text{gal. tank capacity.}$

Then knowing size of tank, the surface may be calculated:

$$S = \frac{3.1416 D^2}{2} + 3.1416 D H \text{ (Diameter and Height in Ft.)}$$

Assuming average values of  $T_s = 80^\circ$ ,  $T_c = 45^\circ$ ,  $R = 15 \text{ hr.}$

$$H_1 = \frac{P \times 8 \times 35}{15} = 18.7 \text{ P.}$$

$$\text{Assuming } T_d = 40^\circ$$

$$H_2 = \frac{L \times F \times 40}{15} + \frac{3.5 \times 40 \times S}{15} =$$

$$2.66 L F + 9.33 S$$

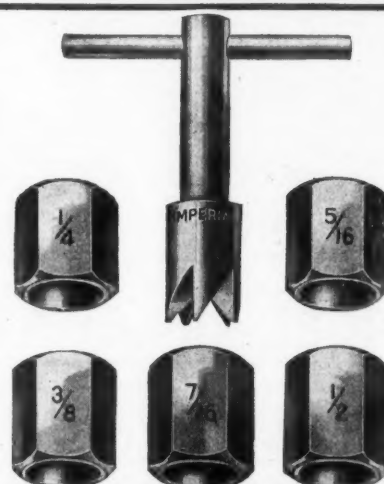
Water cooling tank of the welded, pressure type, illustrated here, has a 95 gal. capacity, for water pressures up to 100 lbs. per sq. in.

Tank and heads are constructed of 3/16" boiler plate.

Coil of 1 1/4" ex. hy. blk. pipe, double helical, 20" and 14", 10 turns, each coil approx. 80 ft. total, coil with 3 legs.

After welding in coil, assemble and test with air and soapsuds. If tight, galvanize tank and coil and tank head. Use galvanized bolts and nuts. In final assembly cover tank with 2" cork lagging, cemented and covered with 10-oz. waterproofed canvas. Use a 3" wooden frame for top and base and fill with ground cork. Cover top with 1" sheet cork and canvas.

## Five Aids To Better Installations



### IMPERIAL REFACING TOOL

This new Imperial Tool insures against leaks caused by S. A. E. couplings that do not seat properly. When scratches or other blemishes prevent an absolutely tight seat, the coupling may be refaced in a few moments with the Imperial Refacing Tool. Thus the practice of throwing away fittings and valves with damaged seats is eliminated. In use, the coupling is inserted into the correct adapter; then a few turns of the five-fluted hardened steel refacer will produce a faultless seat of just the correct size and taper for an absolutely tight and leak-proof joint.

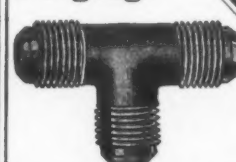
No. 100-F Refacing Tool with adapters for sizes 3/4", 5/16", 1/2", 7/16" and 1/4". Per Set... \$3.75

### Imperial Tube Cutter



Here is a highly efficient tool for cutting copper, brass, block tin and lead tubing. It takes all sizes of tubing from 1/4" to 1 1/2" and makes a right-angle cut, quickly and cleanly, leaving no burrs or chips to clog the line. The tubing does not become out of round as when put in a vise. When this tool is used, tubing can be cut in half the time required by old methods and a far better job results. No. 94-F Tube Cutter, each \$2.50

### Brass Forgings



Accurately made to meet all the requirements of Iceless Refrigerator Manufacturers. Will not leak. Let us quote on your requirements.

### Imperial Flaring Tool

The Imperial Flaring Tool gives the proper flare and taper to the tubing for making up joints. A perfect flare means a tight joint, and this tool does the work in the least time and with the utmost simplicity. No loose dies—no vice necessary. No. 93-F takes tubing sizes 7/16", 3/16", 1/4", 5/16", 3/8", and 1/2", each \$3.00. No. 95-F takes tubing sizes 1/4", 5/16", 3/8", 1/2" and 5/8", each \$4.00.

### Imperial Tube Bender

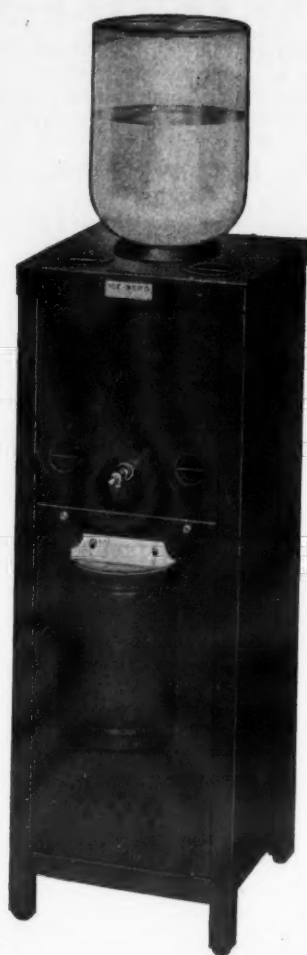


Here is a simple but most efficient device for bending tubing to any degree desired. This tool was developed in our laboratory after many tests with every method known for bending tubing. With the Imperial Tube Bender a clean, workmanlike bend can be produced in a few seconds. This tool is light in weight and most simple to use. It consists of a coil of spring steel wire, with a flare at one end. To use, it is merely slipped over the tubing and brought to rest at the place where the bend is to be made. Then both tube and coil are bent by hand to whatever form desired. Seven Tube Benders comprise a complete set and each is strongly made, cadmium plated and will last a lifetime. No. 101-F Tube Bender Set for tubing sizes, 1/4", 5/16", 3/8", 1/2", 5/8" and 3/4". Per Set... \$2.75

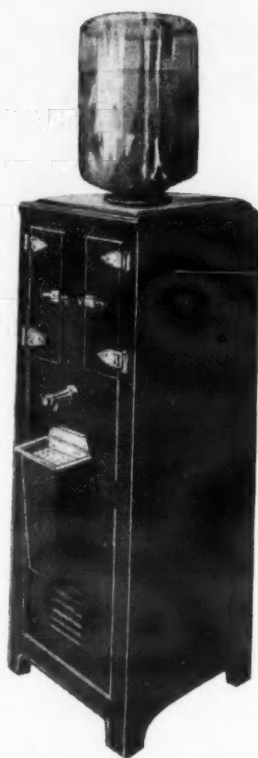
THE IMPERIAL BRASS MANUFACTURING CO.  
 565 SOUTH RACINE AVE. CHICAGO, ILL.



## ICEBERG



## DYER



## Great Variety of Models Shows Progress in

## TEMPRITE

THE industrial line of Temprite coolers includes seven models, the cabinets of which are made of heavy furniture steel, finished in gray Krinlac. The top and receptors are cast-iron gray porcelain, enameled.

The Temprite uses a direct cooling system. This system embodies the transfer of heat from the water or beverage to the refrigerant through only a thin wall of metal. A special section tube, which is freeze-proof, carries the liquid to be cooled directly through the liquid sulphur dioxide or methyl chloride. A positive "liquid-to-metal-to-liquid" contact is constantly maintained.

The basic cooling unit used with the Temprite cooler, unit No. 22, constitutes the low side or evaporator of the flooded type refrigerating system and contains the cooling coil complete, liquid level control and temperature control.

The Temprite cooler is used for cooling beverages as well as water.

## HALSEY TAYLOR

HALSEY TAYLOR direct-flo electric water coolers are of the instantaneous type. The direct-flo system consists of two metal tubes, one of which telescopes the other. Length and diameter of the tubes are dependent upon the capacity of the unit. The outer tube of the direct-flo system is grooved lengthwise with four grooves, of a depth such as to cause metal to metal contact with the inner tube. The thin annular space between the inner and outer tube is the space through which the water flows. The refrigerant flows in an evaporating stream and in a counter direction through the inner tube.

In this system the discharge end of the water tube is connected to a storage tank. This storage permits a temporary overload on the system with little change in temperature.

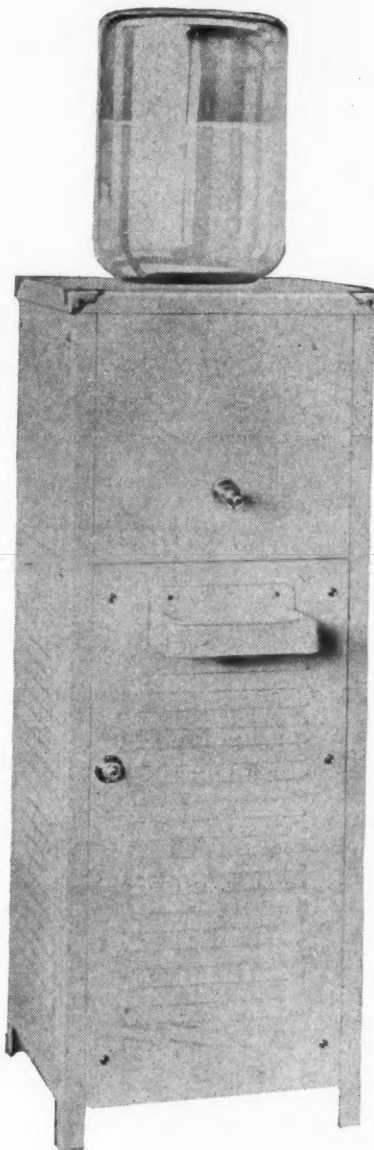
## FRANTZ

FRANTZ water coolers, which use the unit system of cooling water by agitation with electricity, contain from 2 to 20 or more cooling units, depending upon the amount of cold water needed and also upon the capacity of the compressor used.

Each unit holds approximately two quarts of water and is made with an agitating pipe through which the water enters the unit and is carried to its base. At this point the incoming warm water is broken into fine particles and instantly cooled by contact with cold units and the cold water in them. These cooling units are submerged in a bath of very cold water, which is cooled by an electric compressor and an ice forming coil, by which it can be made colder than with natural ice. As the warm water, or drinking supply, passes through the cooling units it is broken up and agitated in each one, equalizing itself in temperature with the cold water in which the units are submerged.

Walls of all Frantz coolers are insulated with 2-inch corkboard and waterproof insulation lining. A special step-like lid, built similar to a refrigerator door, guards against cold leakage and makes an air-tight cabinet.

## COPELAND



## KELVINATOR



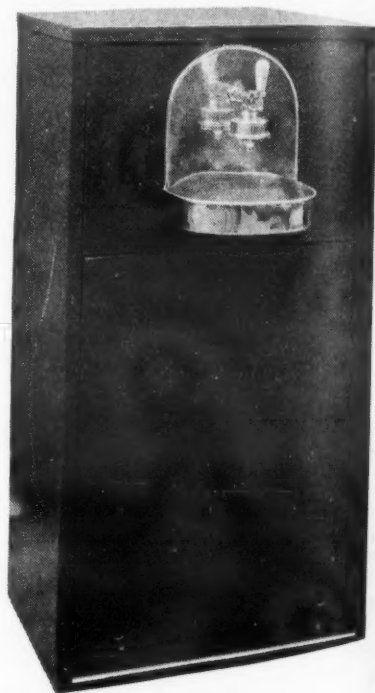
## DAY AND NIGHT

THE Day & Night storage water cooler consists of a heavy gauge steel tank, in which a cooling unit provided with metal fins is inserted. These metal fins increase heat absorption from the water.

This storage water cooler can be used either in complete circulating or non-circulating systems, and in individual or remote control units.

Any make of compressor unit will operate the Day & Night cooler, which is made by the Day & Night Water Heater Co., Ltd., Monrovia, Calif.

## FILTRINE



## GENERAL ELECTRIC

A WHITE porcelain evaporator, having a capacity of two quarts, forms the cooling compartment of the General Electric bottle water cooler. The compressor unit of the cooler is of the single oscillating cylinder type, connected directly to the motor and enclosed in a hermetically sealed casing. It has a bore of 1 in. and a stroke of .55 in. The compressor and motor are mounted on three helical springs inside of the housing and the complete unit is suspended in the casing by a steel cable.

The condenser is air cooled and the condenser tubing is attached to the sheet steel casing of the unit, thereby utilizing the entire outer surface for the radiation of heat.

The waste basin has a capacity of three quarts and is removable for emptying. General Electric water coolers are offered in three models, DB-1, C-2 and C-3. Models C-2 and C-3 are designed for city water connections and are equipped with combination bubbler and faucet. All water and drain connections are made underneath the cabinet. Model C-2 has a 1/2 h. p. motor, while C-3 has a 1/6 h. p. motor.

## LIGONIER MEN ATTEND ATLANTA CONFERENCE

Atlanta, Ga.—Representatives from six Southern states attended the Southern district convention of the Ligonier Refrigerator Company on January 15-16, in Atlanta. Sol Henoch, president of the Ligonier Company, and Charles H. Simmons, sales manager, addressed the sessions, which were held at the Henry Grady Hotel.

## TO MANUFACTURERS OF ELECTRIC AND GAS UNITS

If you want CABINETS as you want them let PUFFER-HUBBARD build them. We work to specification.

Puffer-Hubbard Mfg. Co. MINNEAPOLIS, MINN.



## LIG-O-NIER PORCELAIN-CLAD DISPLAY COUNTERS NOW

This is the age of color. In every business color is being used to attract public favor, to give new zest to selling.

The new Ligonier Porcelain-Clad Colored Display Counter is now available in delicate pastel shades of blue or green, or in pure white. In either of these attractive colors it will brighten up food stores and make meats and other perishable foods on display more tempting and inviting.

The new Ligonier Porcelain-Clad will last a business lifetime, and give 100% unobstructed display. It is engineered for mechanical refrigeration. Like all Ligonier Refrigerator Equipment it is built of the finest materials by Ligonier master craftsmen. Ligonier Refrigerators, Coolers, and Grocery Boxes all of Ligonier fine quality are built in a wide variety of models and sizes to meet every food store need. Write for catalog and full information.

**LIG-O-NIER**  
REFRIGERATOR DIVISION

LIGONIER, IND.

ALLIED STORE



UTILITIES CO.

AGENCIES IN ALL PRINCIPAL CITIES

AVAILABLE

IN BLUE

GREEN OR

WHITE

## FORGED BRASS FITTINGS

For Automatic Refrigeration

"Built Right -- to Stay Tight"

Commonwealth fittings are especially designed to meet the exacting requirements of the Automatic Refrigeration Industry. Compact grain structure and great tensile strength are obtained by the use exclusively of brass forgings, and rod. Commonwealth fittings are machined to unusually close limits; threads are accurate and uniform; seats are perfect, tight, seepage-proof connections are assured for the life of the installation.

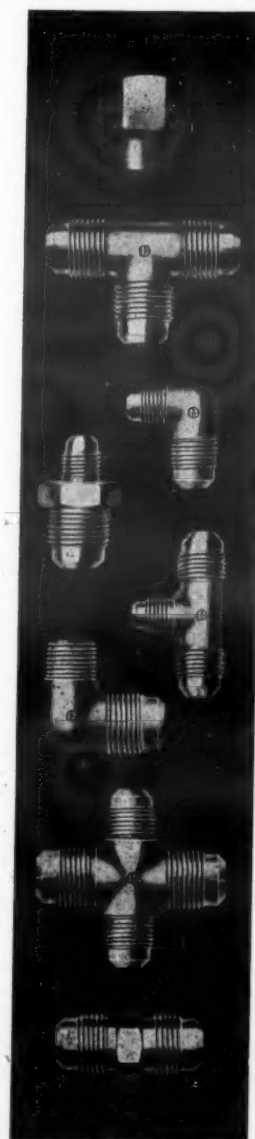
All standard sizes—and many special sizes with almost any combination of pipe and tube ends—are in stock for immediate shipment. Each fitting is individually wrapped to insure against marring.

Send for Catalog No. 36

COMMONWEALTH BRASS CORPORATION

Commonwealth and G. T. R. R.

DETROIT, MICH.





# Solving Problem of Proper Water Cooling

## KELVINATOR

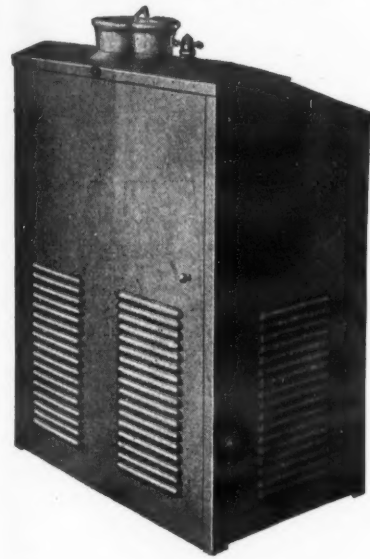
TWENTY-SIX models comprise Kelvinator's line of Direct-Flo water coolers. These models are of the instantaneous type, in which the transfer of heat from the water to the refrigerator is rapid, resulting in high compression suction pressures and, consequently, high refrigerating capacity.

The outer tube of the Direct-Flo system is grooved lengthwise with four grooves, of a depth such as to cause metal to metal contact with the inner tube. The thin annular space between the inner and outer tube is the space through which the water flows. The refrigerant flows in an evaporating stream and in a counter direction through the inner tube. As the water is broken into a thin film in passing through the annular space between the tubes, and as it is only separated from the evaporating refrigerant by the wall of the inner tube, rapid cooling results.

The cabinets of Kelvinator's bottle water coolers are made of 18-gauge copper-bearing furniture steel, the frame being angle-iron, welded and of reinforced construction. The four sides of the cabinets are finished in crystal lacquer while the top is white vitreous porcelain.

The faucet is self-closing, push type; waste water container is on the inside of the cabinet. The cooling tank is insulated on four sides, as well as top and bottom. The cooling unit is an expansion coil type. An ice formation accumulates on this coil under normal conditions, which handles peak demands. A thermostat control bulb, secured to the cooling unit on the water bath, insures accurate control of drinking water temperature. The condensing unit used in the water cooler is the same standard unit used in Kelvinator domestic cabinets.

## HALSEY TAYLOR



## WELSBACH

WHILE the Welsbach Co., Gloucester City, N. J., does not build a complete water cooler, it does market refrigerating systems for use in cabinets manufactured elsewhere and its business is largely concentrated on the Ebeco line of coolers. This line is made by the D. A. Ebinger Sanitary Mfg. Co., 180 Lucas St., Columbus, Ohio.

Ebeco water coolers are offered in three types, bottle coolers, city pressure coolers and remote bubbler coolers. Models C-581 and C-581-E are bottle type coolers. Models C-591, C-591-E, C-511, C-511-E, C-514, C-514-E, C-515 and C-515-E are city pressure type coolers, while model C-431 is a remote bubbler type cooler.

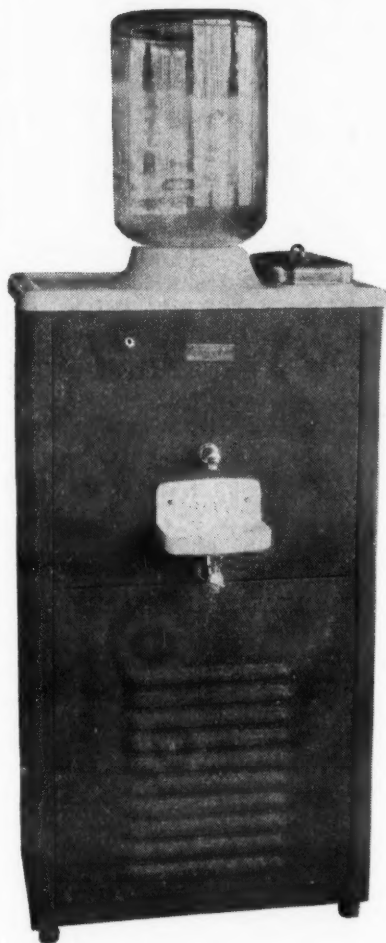
## ICEBERG

FIVE models of electric water coolers are in the 1930 line announced by the Iceberg Manufacturing Co. of Gardner, Mass. Three of the Iceberg models are for pressure type installation, while two are bottle water coolers. Models 100A, bottle type, and 100C, pressure type, have two compartments which make 24 ice cubes in one freezing. Both also have two compartments, with openings at the top of the coolers, for chilling bottled beverages. These compartments will take care of six bottles and a temperature of about 45 deg. is maintained within.

Cabinets are of all-steel construction and finished in Duco brown mahogany to match furniture in offices. All five models have the same exterior dimensions, width 16", depth 16", depth including waste water receptor, 21", and height 45½".

Iceberg coolers are primarily designed for installation in offices, but can be adapted also for factories. In 1929 one concern ordered 1,500 coolers with the ice cube and beverage compartments.

## KELVINATOR



## COPELAND

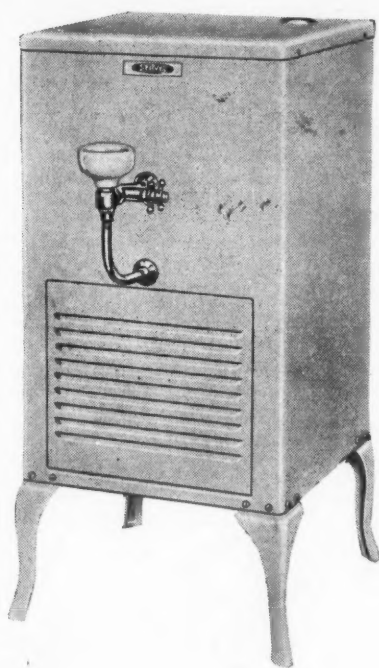
THE Copeland bottle water cooler, Model P, has a reserve capacity of over four gallons and a cooling capacity of 100 average drinks per hour.

The cabinet of Model P is white pyroxylin lacquered steel, insulated with 2" of wrapped corkboard. The water bowl has additional insulation, being packed in Kapok. The dimensions are 16½ in. x 16½ in. x 46 in. The total height with bottle is 64 in.

The waste water container is attached to the door of the machine compartment and has an outlet at the bottom for draining. When this container is full the water floods back into the drip bowl, indicating the need for emptying.

The condensing unit is a one cylinder reciprocating type, operating on the power of a 1/6 h. p. motor. This compressor is built especially for water cooling purposes.

## SERVEL

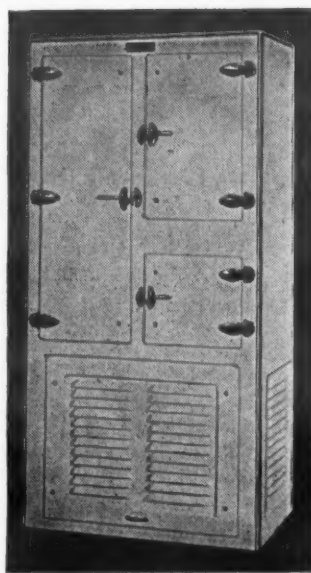


## DYER

WATER coolers with capacities from 3 to 5 gallons of water per hour are included in the line offered by Dyer Electric Cooler Corp., New York City. One of the models has in addition to its water cooling facilities, compartments for freezing twenty-four ice cubes.

These models are equipped with either reciprocating or rotary compressors, powered with motors ranging from 1/6 to 1/4 horsepower. Five standard sizes are included in the line of pressure and bottle type coolers. Methyl chloride and ethyl chloride are used as refrigerants.

"It was built by BOHN"



The handy base cabinet may either be used for refrigerating machinery or the storage of cooking utensils, canned goods, vegetables, etc.

The name BOHN is our warranty that the finest materials obtainable have been utilized by skilled craftsmen and refrigeration engineers to build for you this beautiful and scientific product—an all-porcelain BOHN refrigerator.

BOHN installations include many of the leading hotels, restaurants and hospitals in America.

BOHN refrigerators are used exclusively on all Pullman-built railway dining and buffet cars.

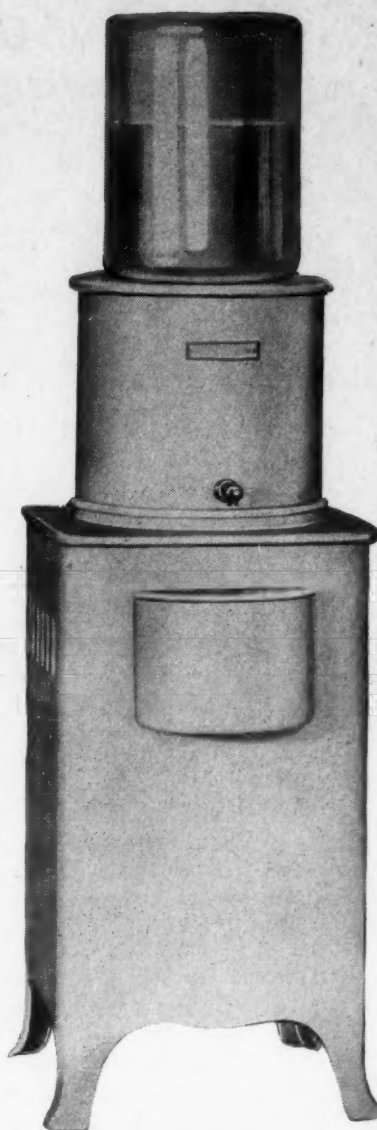
The United States War Department has purchased hundreds of all-porcelain BOHN refrigerators for our army barracks and battleships.

In choosing BOHN refrigerators, discriminating home owners throughout the country have given BOHN a representative list of which any manufacturer might be proud.

Write for details of the remarkably low prices that are now prevailing.

**BOHN REFRIGERATOR COMPANY**  
SAINT PAUL, MINNESOTA

## GENERAL ELECTRIC



**COPELAND NAMES BRITISH COLUMBIA DISTRIBUTOR**

Vancouver, B. C.—Radio Sales Service, Ltd., 1213 Wharf St., which distributes Atwater-Kent and Philco radios, has taken over complete distribution of the Copeland electric refrigeration in British Columbia.

R. D. Lord, who has handled the Copeland line during the past three years, recently joined Radio Sales Service.

**NAMED KELVINATOR DEALER**

White Pine, Tenn.—Williams-Allen Hardware Co. has taken over the sale of Kelvinator for Jefferson County, operating under the Knoxville distributor.

## THE TEMPRITE

### Liquid Cooling Principle

offered in

## 13 Distinct Models

TEMPRITE Coolers are carefully engineered and designed for specific applications. Their efficiency and capacities are definitely given. Economical to operate, easy to install, built to last a life-time. TEMPRITE Coolers are suited to any liquid cooling job.

The TEMPRITE line includes:

- INDIVIDUAL UNITS FOR
- Circulating Systems
- Multiple (Single Jet) Installations
- Dead End Systems
- Restaurant and Cafeteria
- Homes, Hotels, Apartments
- Beverage Cooling

Write for descriptive literature on the full line of TEMPRITE Coolers

**Liquid Cooler Corp.**

"Originators of Instantaneous Coolers"

6527 Russell St.

Detroit, Mich.

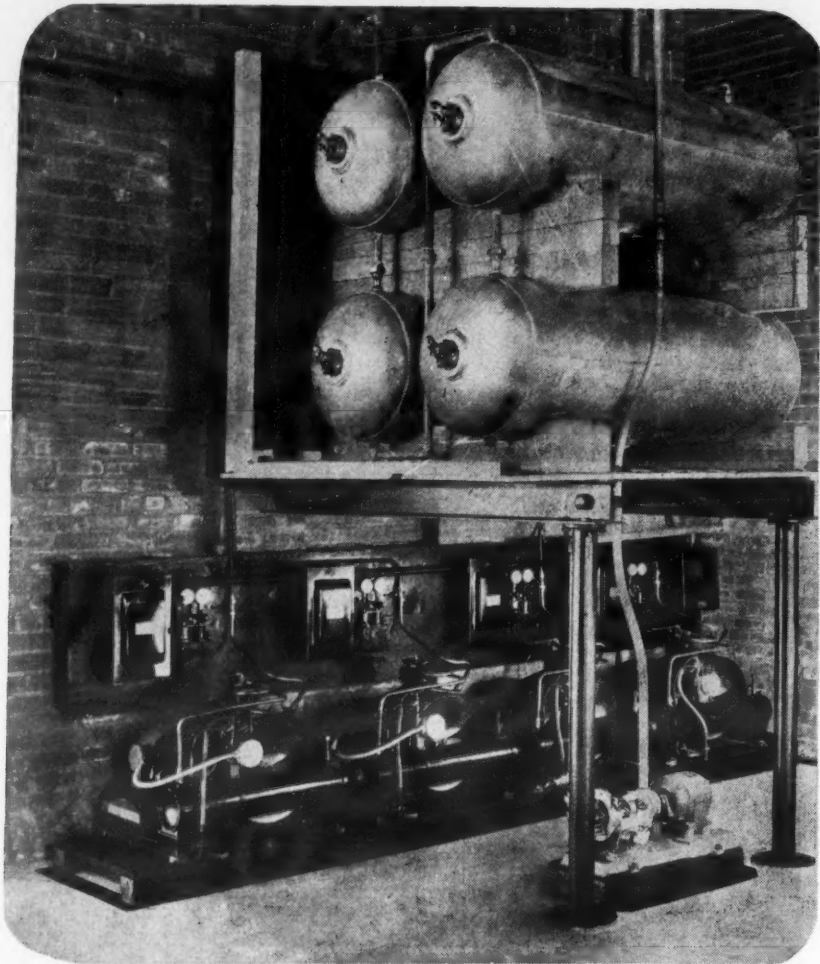
**WELCOME to**  
**NEW YORK and**  
**The HOTEL**  
**GOVERNOR**  
**CLINTON**  
**31<sup>ST</sup> ST. and 7<sup>TH</sup> AVE.**  
**Opposite PENNA. R.R. STATION**

1200 Rooms  
each with  
Bath and  
Servidor  
ERNEST G. KILL  
Gen. Mgr.

**ROOM AND BATH 3<sup>00</sup> UP**



## Big Tanks Permit Four Stages of Cooling



Day and Night System in Los Angeles factory.

## SUPPLIES FACTORY ON PACIFIC COAST

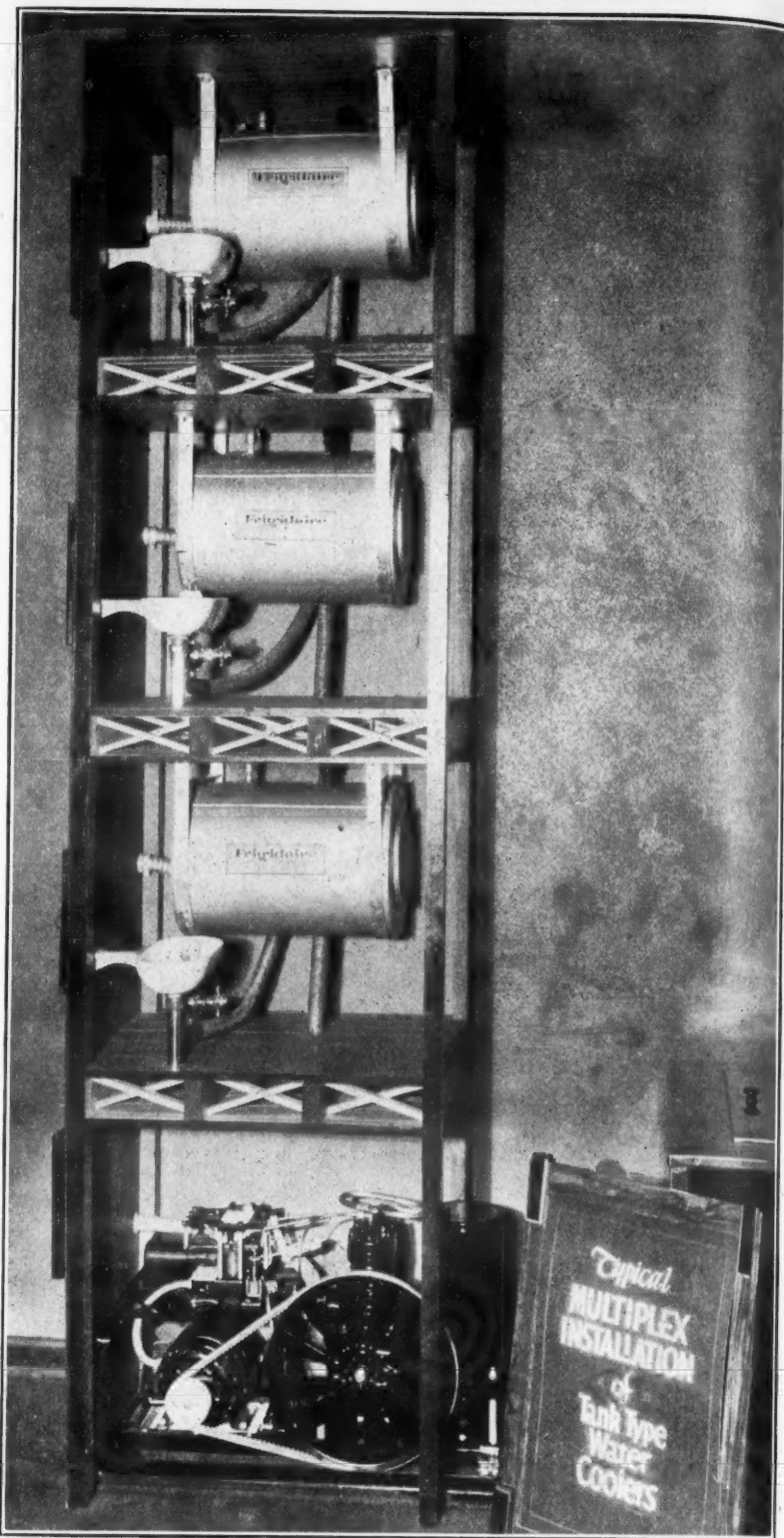
THE circulating water cooling system in the factory of the Continental Can Corporation at Los Angeles, was made by the Collins-Kelvinator Corp. of Los Angeles, using Kelvinator condensing units and low side equipment manufactured by the Day & Night Water Heater Co. of Los Angeles.

Four of the 100-gallon Day & Night storage type water cooling low sides shown in the picture are operated by four 1-h.p. water cooled condensing units. The tanks are connected in series so the water has to travel the entire length of the tank before entering the next one, thus permitting four stages of cooling. Intake to the circulating pump is taken at the bottom of the last tank. The four tanks are mounted on timber cradles and insulated with ground cork. The entire superstructure is enclosed in a boxlike cover.

The refrigerant, sulphur dioxide, evaporates in finned cylinders, which are an integral part of the cooling tanks. There are two evaporating cylinders in each tank, one in each end operated by a Kelvinator unit. Due to the fact that the water has free circulation through the space between the inner evaporating cylinders and the outside of the tank, there is no loss of head pressure in the cooling tanks.

Servicing of float valves or condensing units can be done without shutting off the water and any condensing unit can be repaired without affecting the operation of the others. Several thousand feet of cork insulated circulating lines distribute the cold water to all parts of the factory, which covers an entire city block and houses 500 workers. A duplicate of this installation was recently placed in the Continental factory in Oakland, Calif.

## Frigidaire Displays Multiplex Water Cooling System



THE Frigidaire tank type water-cooling system shown in the photograph above has been installed as a demonstration unit in the commercial showrooms of the H. W. Prior Company of Dayton. The three storage tanks are arranged as they would be in a three-story building, each tank supplying its own immediate group of fountains. A system of this kind requires a small tank on each floor, and every tank in the circuit is, of course, connected with the compressor and pump in the basement. It is called the Frigidaire Multiplex Installation, and is in successful use in numerous buildings.

### MASON AND BURRITT IN SOUTHEASTERN STATES

Detroit, Mich.—George W. Mason and H. W. Burritt, president and vice-president of the Kelvinator Corporation, left here on Jan. 21 for Washington, D. C., first stop in an itinerary of visits to Kelvinator distributors at nineteen key cities in the southeastern section of the country. This is the third trip of the two executives in their on-the-spot survey of conditions, the first having been to points as far west as the Pacific Coast, with a swing down through the southwest. Their next trip was eastward, through New York and the New England territory.

### WAYWARD HEN LETS G. E. HATCH EGGS

Stanton, Orange County, Calif.—When Biddy, Mrs. Herbert Cook's setting hen, struck out and deserted her nest before the eggs were hatched, she showed a fowl display of temperament, but a General Electric refrigerator unit came to the rescue and saved the spark of life generated by the might-have-been mother.

After Mrs. Cook found that Biddy did not intend to return to the nest, she placed the eggs in a cardboard box, covered them with a cloth, and set them on top of the unit of her General Electric. A few days later, seven small chicks burst from the shells. Mrs. Cook bought her refrigerator from William LaVecke, dealer under George Belsey Co.

### False Alarm

WHAT for a brief moment looked like the biggest news of the year filtered in the other day from a Southern correspondent. It began as follows: "More than 500 Frigidaire salesmen from Miami, Jacksonville, Birmingham and other cities in the Southeast assembled today in Atlanta for the annual sales convention of the General Electric Company." Preparations were made at once for obtaining a complete story of the big battle, with a full list of casualties, but the plot fizzled when a correction was received stating that the convention wasn't a General Electric affair after all.

### SOUTHERN FRIGIDAIRE MEN MEET

Atlanta, Ga.—Five hundred Frigidaire dealers and salesmen from the Miami, Jacksonville, Atlanta and Birmingham districts were present January 21 at the opening of a three-day annual regional convention here.

The exhibits used in connection with the conference were at the Atlanta Biltmore Hotel, which served as headquarters for the meeting. The meetings proper, along with the entertainment features, were held at the Erlanger Theatre and the new \$1,000,000 Shrine Mosque, where the kitchens and dining rooms were used by the Frigidaire delegates for the first time.

J. B. Reeves, manager of the local branch of the Frigidaire Corporation, was in charge of arrangements.

### IOWA UTILITY TO SELL KELVINATOR

Burlington, Iowa — Iowa Southern Utilities Co. has started operations as Kelvinator dealer for the Burlington and Des Moines County territory under Kelvinator-Interstate, Inc., distributors at Rock Island, Ill., which now has representatives in more than thirty cities.

## KULAIR Electrical Refrigerating Products

*Simplicity, quality, efficiency and capacity unequalled. A size for every use.*

for  
**DISTRIBUTORS, DEALERS  
and SMALL MANUFACTURERS**



Small Compressors  
90 Lbs. I. M. C.  
For Domestic Applications

### KULAIR

Is the originator of the direct factory to distributor policy, allowing the distributor or dealer the privilege of attaching his own name plates, advertising and selling **UNDER PRIVATE NAMES** at prices fixed by him with choice of refrigerant to suit local demand.



Large Compressors—2000 Lbs. I. M. C.  
For Commercial Work.

## KULAIR

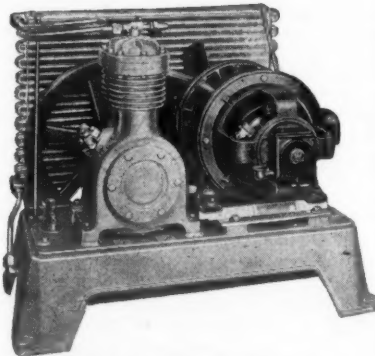
**PRODUCTS ARE SUITABLE TO**  
Sulphur Dioxide, Methyl Chloride  
Butane or Iso Butane  
**KULAIR**  
CONDENSING UNITS

Available in 22 sizes from 90 Lbs. to 2500 Lbs. I. M. C.  
Air and Water Cooled are Applicable to Every Requirement.  
Commercial, Multiple, or Domestic

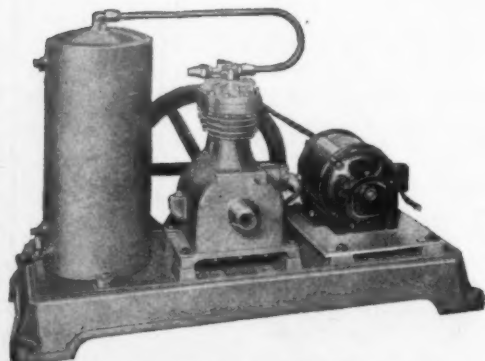
We are also the Manufacturers of the Famous Line of  
**Franklin**  
**AIR COMPRESSORS AND EQUIPMENT**



Semi-Commercial Condensing Units. For Large Domestic, Small Apartment, Small Stores Installations.



Commercial Condensing Units For Meat Markets, Large Apartments, Large Stores, Hotels, Cold Water Systems, Etc.

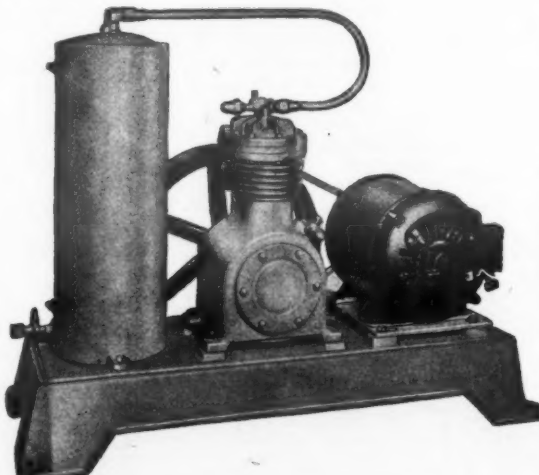


Water Cooled Condensing Units  
400 to 1000 Lbs. I. M. C.



For  
Automotive  
Paint Spraying  
And Industrial Uses

**THAT'S WHY  
FIFTEEN YEARS  
OF  
COMPRESSOR  
BUILDING  
TELLS US HOW**



Large Water Cooled Condensing Units  
1000 to 2500 Lbs. I. M. C.

Kulair Refrigerating and Business Engineers are Leaders in the Industry. Policies, Products and Prices have proven to every one of our connections that the Distributor, Dealer, Assembler and Customer makes money by the advertising and merchandising advantages offered by our plans.

Write For Full Information

**KULAIR CORPORATION PHILADELPHIA, PA.**



## COPELAND CONVENTION

(Concluded from Page 4, Column 5)

clared that they were limited only by their own efforts. "Building appropriations for 1930 are tremendous," he declared. "Electric refrigeration is no longer a luxury. It is a necessity, and with all this building ahead there is work for electric refrigeration. This year will require a high degree of intelligence applied to salesmanship, but we can make 1930 just what we want to make it."

E. Barger, in charge of engineering development, outlined what Copeland was doing in keeping abreast with the latest developments in electric refrigeration. He explained many details of service and new features as developed by the Copeland engineers.

C. W. Hadden, of the executive staff, explained how Copeland was now handling its contacts with the dealer organization by zoning the entire country and placing men in each zone. These men have all been thoroughly trained not only in the mechanics of electric refrigeration, but in selling through actual experience, so that they are thoroughly competent to deal with any problem which a distributor or dealer may have to solve. He then proceeded to introduce the men to the convention, including George Pizarro, H. Pettibone, Burman and Pinkney, covering Washington, Oregon, California, Montana, Wyoming, Idaho, Colorado, New Mexico, Arizona; R. W. Jones, King, Kirkpatrick, Cline and Wood, covering Texas, Nebraska, Kansas, Oklahoma, Arkansas, Mississippi, Alabama, eastern Tennessee, southern Illinois and Missouri; Scott, Broad, McMurray, and Hinger, covering Ohio, western New York, western Pennsylvania, Indiana, West Virginia and Kentucky; Frank Williams, W. F. Lyon, T. W. Sprague, and F. R. Smith, covering the New England states, eastern New York, New Jersey, eastern Pennsylvania, Maryland, and the District of Columbia, and O. N. Beebe, stationed at Norfolk, and F. Obert at Philadelphia.

F. N. Pattison, head of the dealer development department, stressed the importance of drilling selling points into the sales force, emphasizing the value of the "canned sales talk" particularly. Edward Hughes, superintendent of the factory, explained the details of the new factory, showing how production had been speeded up through the introduction of modern methods.

Harry Burman, of the sales department, explained the operation of refrigerants, while C. S. Smith, comptroller, told how a budget should be applied. W. Y. Rahn, secretary of the Commercial Credit Corporation, gave an elaborate description of how time payments are applied to electric refrigeration, particularly as to "floor planning" models for the salesrooms.

Glenn Muffy, consulting engineer, now connected with the Allied Motors Corporation, of which W. R. Wilson is president, told of many engineering features which have been incorporated into the Copeland machines and of the many problems confronting the engineering department.

The first day's session closed with a playlet presented by Copeland men, representing three sailors trapped in a

sunken submarine. One sailor, who had been a Copeland salesman before joining the navy, then proceeded to "sell" the other two tars on Copeland, all agreeing to be Copeland men if they should be rescued. And presently they were. Copeland electric refrigeration is now in use on several submarines in the American Navy.

At the second day's session J. R. Smith, of the sales force, explained the "Copeland Cycle" of refrigeration, while Harry Newcomb, service manager, told of many angles of service. W. A. P. John, vice-president of the Campbell-Ewald Company, which directs the Copeland advertising, explained the national advertising campaign for the year, while W. S. Race, director of advertising and sales promotion, outlined Copeland's direct mail and dealer help campaign. H. B. Law, of the Moebius Company, which handles Copeland's direct mail printing, also spoke.

Copeland's position in the water cooler field was explained and its selling points elaborated by Mr. McElhinny, Mr. Pattison and D. B. Henry, while Henri Brysselbout, of the commercial engineering department, gave a talk on Copeland's commercial line. L. U. Larkin, of the Larkin-Warren Refrigerating Corp., which manufactures the Larkin coils used in Copeland commercial refrigeration, spoke on the use of the coil, while M. R. Moore followed this talk up with one on dehydration of meats in refrigeration.

At the banquet President Ruthenburg was cheered and a banner hoisted in the center of the big banquet hall with the inscription: "We are with you, Ruthenburg, 100 per cent." Among the speakers at the banquet, in addition to Mr. Ruthenburg, were H. M. Robins, president of the H. M. Robins Company; C. W. Haddon, of the executive staff; W. A. P. John, of the Campbell-Ewald Company; F. M. Cockrell, of the ELECTRIC REFRIGERATION NEWS, and W. D. McElhinny.

At the close of the banquet loving cups were awarded to the winners in the nation-wide sales contest, which were announced in the January 15 issue of the NEWS.

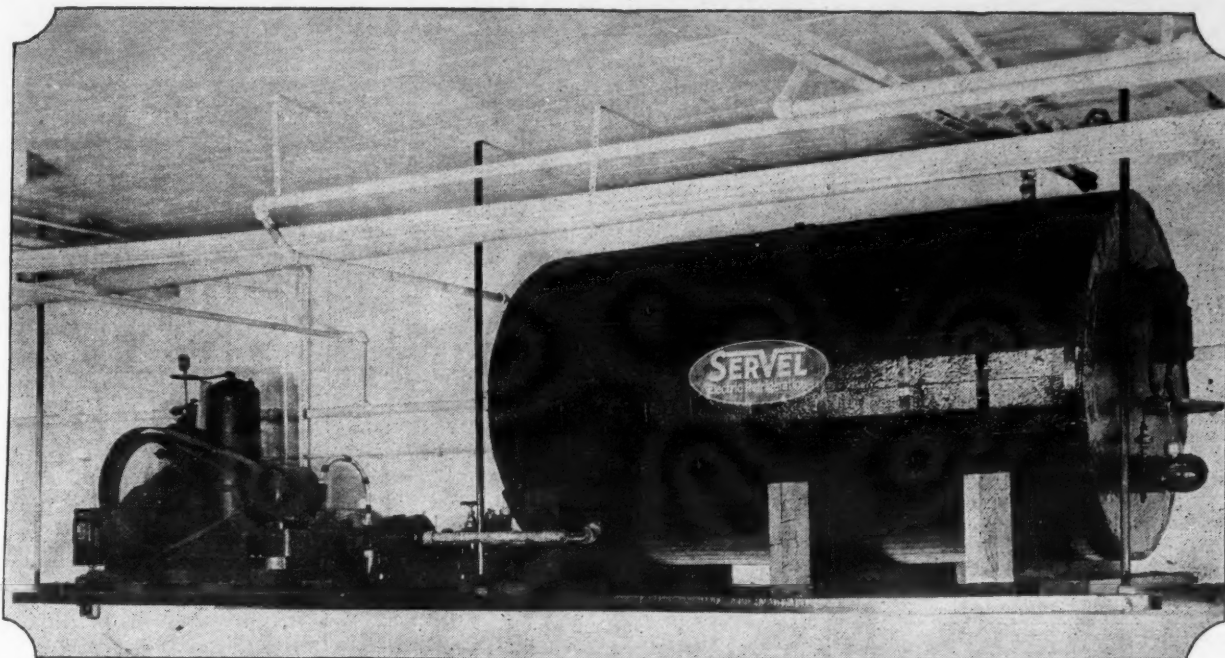
## E. L. KELLOGG JOINS LIQUID COOLER CORP.

**Detroit, Mich.**—Shortly after the holidays E. L. Kellogg became actively connected with the Liquid Cooler Corporation as vice-president and treasurer.

Mr. Kellogg comes to the Liquid Cooler Corporation with a very broad experience in the financial side of business management, both from manufacturing and distributing angles, as well as earlier connections in banking. He formerly was secretary and treasurer of the Keweenaw Private Utilities Company, where his activities brought him in close contact with the development of distributor and sales outlets.

The Keweenaw Private Utilities Company manufactures water supply and pumping equipment, which was marketed through branches, distributors, dealers and sales agencies.

## Servel Will Cool Water Dispensed in New Evansville Garage and Recreation Center



Compressor and storage tank with 250 gallon capacity are mounted on raised platform

## Twelve Outlets Served

**Evansville, Ind.**—A new ramp type storage garage will open in Evansville February 10. This station is one of a large chain operated under the D'Humy management. It is the very latest type for transient or resident storage, and in addition offers washing, oiling, greasing and other service. Fire-proof storage for nearly five hundred cars is provided on three floors, joined by a smooth set of ramps. Passenger elevators are provided for ascending or descending attendants. The fourth floor is given over to a modern amusement parlor, featuring bowling and billiards.

For the comfort and convenience of patrons and employees, the management has provided circulating drinking water throughout the building. For the heavy demand at midday in summer, the system provides 250 gallons of reserve water in a cylindrical steel pressure tank. This water is chilled by a spiral coil of galvanized steel pipe inside the tank. The machine used is the Model 100-AW Servel commercial unit, which provides an ice equivalent of 1,400 lbs. per 24 hours under water cooling conditions. Refrigerant flow to the coil is governed by a thermostatic expansion valve.

The chilled water from the tank is circulated through 450 feet of 3/4-inch pipe by a centrifugal pump. All piping is covered with ice water thick cork covering, and the tank is lagged with 3 inches of beveled cork. This circulating system serves twelve bubblers located at convenient points on all four floors.

## E.T.L. Service for Domestic and Commercial Electric Refrigeration

Testing and experimental laboratory service for Manufacturer, Distributor, Central Station—Test data exclusive property of client.

## ELECTRICAL TESTING LABORATORIES

80th Street and East End Avenue, NEW YORK CITY, N. Y.

## SPEAR'S Ice Water Generators



for  
Commercial  
Industrial  
Multiple  
Factories  
Cafeterias  
Circulating  
Systems

## A COMPLETE LINE FOR 1930

## The Big Water-Cooler Year

Capacities up to 100 gal. per hour

Storage, 1 to 100 gal.

Peak Load, 5 to 400 gal.

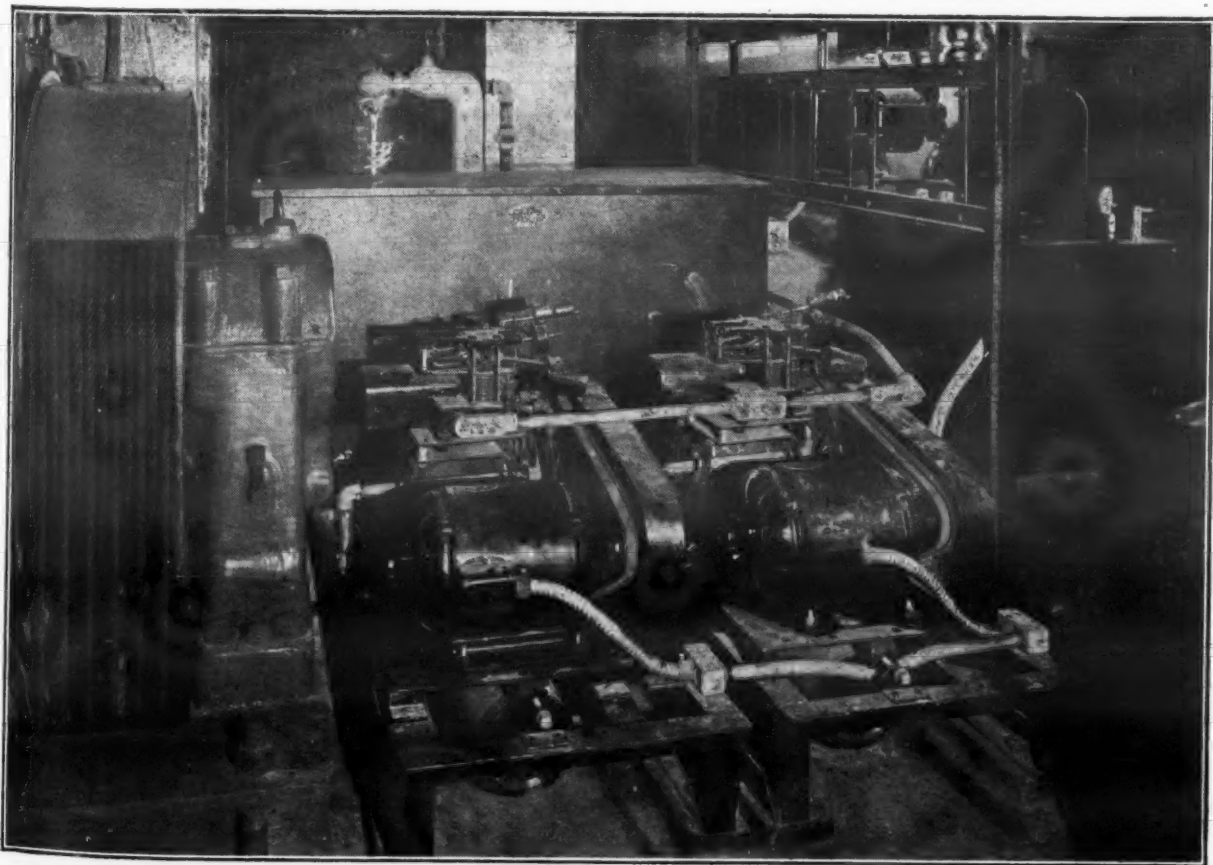
## REFRIGERATION DIV.

**JAMES SPEAR** STOVE & HEATING **Co.**

Founded 1856

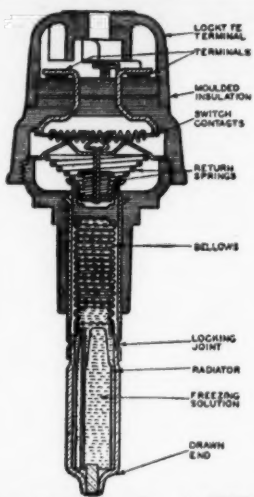
PHILADELPHIA, PA.

## Five Frigidaire Loops in Fisher Building



ONE of the five water cooling loops installed by Frigidaire in the Fisher Bldg., Detroit. The two 1½ horsepower compressors pictured here are placed near the elevator drums on the 28th floor. This hook-up cools the water used in 20 fountains placed at various points. On account of the vast amount of floor space in Detroit's most modern building, it was necessary to divide the system into five loops. In the Fisher Theatre, on the ground floor, six fountains dispense water furnished by one of the loops.





### Ranco Thermostat Controls

for Household Refrigerators, Ice Cream Cabinets, Water Coolers, etc., maintain an even temperature. Once installed, no further adjustments necessary. Now standard equipment with many manufacturers. Write for Bulletin 603.

**THE AUTOMATIC RECLOSING CIRCUIT BREAKER COMPANY**  
COLUMBUS, OHIO, U. S. A.

## For Automatic Refrigeration Manufacturers

Whatever you require in copper, brass, bronze, or copper alloys, we are prepared to furnish on contract either parts or sub-assemblies ready for installation in your unit. Boilers, compression nuts, filters, float-balls, condensers, special nipples, bellows and thermostats, and a large variety of other standard parts. Let us quote on your requirements.

### BRIDGEPORT BRASS CO.

General Offices and Plant  
Bridgeport, Conn.  
Offices in Principal Cities

"Bridgeport"  
TRADE MARK

## HARDWARE ORGANIZATION WILL MAINTAIN SERVICE ON HOLMES EQUIPMENT

Bridgeport, Conn.—The surplus stock of service and repair parts of Holmes Products, Inc., 120 Helen St., has been turned over to the American Hardware Stores, Inc., which will maintain service on Holmes equipment and distributors throughout the country.

A surplus stock of Holmes refrigerators was purchased by Standard Steel Co., 13-17 Kimberley Ave., West Haven, Conn., as announced in the January 15 issue of the News. This company also purchased some of the Holmes factory equipment, such as temperature recorders, time recording instruments, platform trucks and miscellaneous parts.

### CROCKER PROMOTED BY INTERNATIONAL G. E. CO.

Stuart M. Crocker, who on January 1 resigned his position as vice-president and treasurer of the United Electric Securities Company to become assistant to the president of the International General Electric Company, has been elected a vice-president of the latter company. Clark Minor, president, has announced.

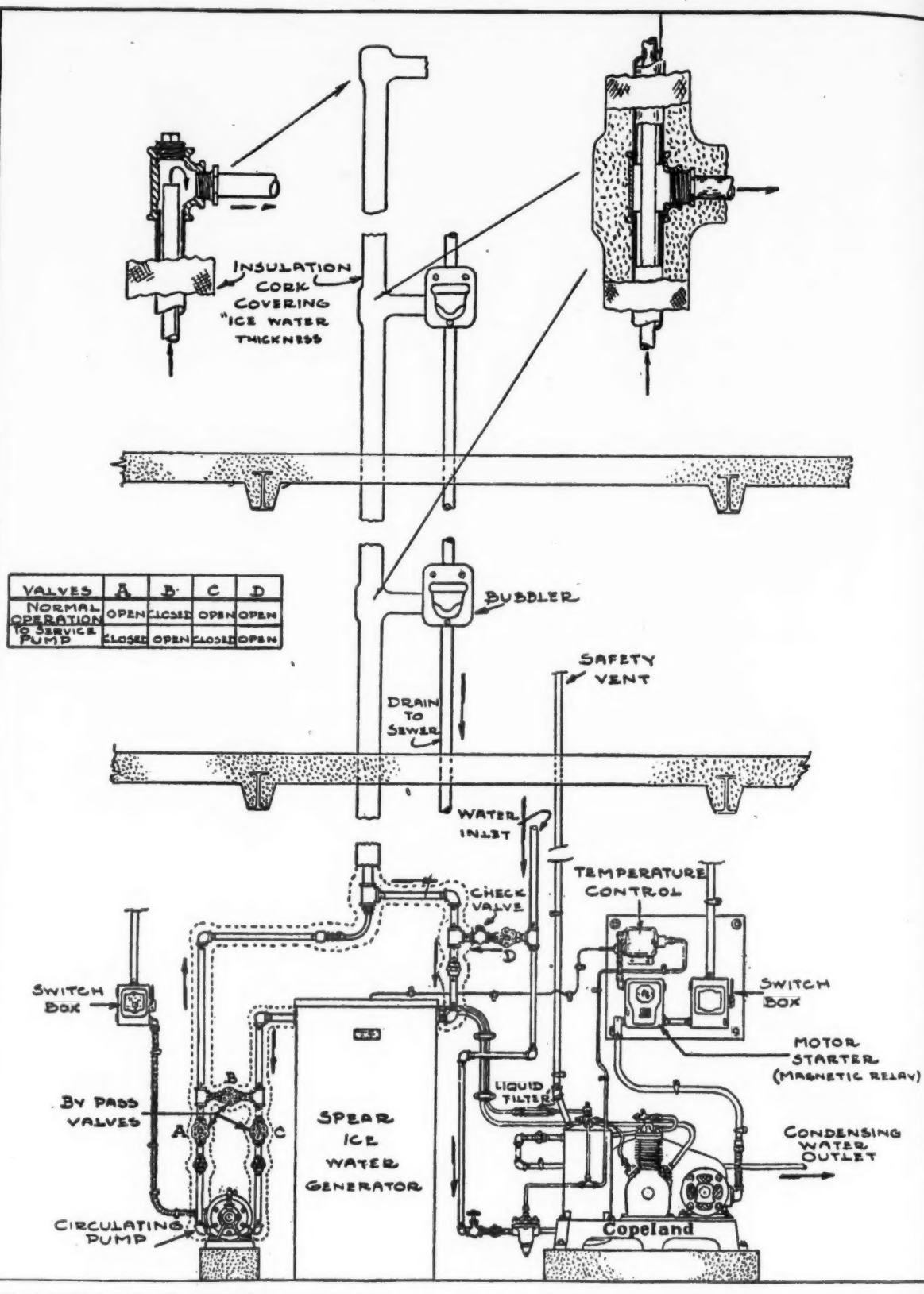
Mr. Crocker, a graduate of Harvard University, was assistant to Owen D. Young, chairman of the board of the General Electric Company and Radio Corporation of America, previous to his position with the securities company. In 1924 he accompanied Mr. Young to Europe as secretary of the American delegation to the Experts Conference which culminated in the Dawes plan. In 1928 he also accompanied Mr. Young abroad in connection with the Paris Reparations Conference which formulated the Young plan. Mr. Crocker's office will be at 120 Broadway, New York.

### KELVINATOR-MIAMI CLOSES MARKET DEAL

Miami, Fla.—The new All-States Grocery Store, Biscayne Boulevard and Twenty-fifth St., recently had Kelvinator electric refrigeration installed in its meat market section. The equipment was sold and installed by Kelvinator-Miami, Inc.

**RECO ELECTRIC MILK COOLING**  
"The Boiler Plate Cabinet"  
**DOMESTIC UTILITIES**  
Division of the Refrigeration Corp. of Maryland  
ARLINGTON, BALTIMORE, MD.

## Copeland-Spear Water Cooling System

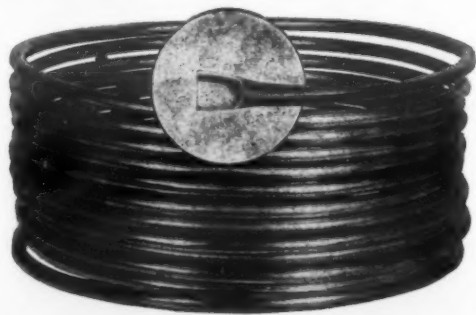


## Dehydrated and Sealed Tubing Cuts Time and Trouble

Moisture and scale in the lines are the dangerous enemies of electric refrigeration service. Wolverine solder sealed, dehydrated seamless copper tubing is a quick, economical and lasting answer to the problem.

Wolverine tubing is annealed uniformly, brightly finished inside and out, carefully tested at the factory. It is made to A. S. T. M. Specification (B 68-27T).

Straight Lengths and Coils for Immediate Delivery.



**WOLVERINE TUBE CO.**

SEAMLESS COPPER BRASS & ALUMINUM

1431 Central Ave., Detroit, Mich.  
Phone Cedar 5000

Sales offices in all major cities. Write or phone for name of nearest representative.

THE Copeland-Spear one-pipe circulating ice water system has all necessary outlets in the form of pipe tees. A copper tube is then pushed through the main pipe (iron, steel or brass) to a point two inches from the extreme top or end. At the bottom, or where the copper tube enters the main pipe, it

is secured by a compression type fitting, which is water-tight.

The chilled water is pumped or circulated through the inner tube and expelled at the top into the larger pipe surrounding the tube. The water then travels down the outside pipe and is available for drawing at the drinking

fountains placed at various points. While traveling down the outside pipe the temperature is raised slightly by the surrounding room temperature, but this rise is offset by the colder water in the inside tube. This makes the regenerative system very similar to a counter flow condenser.

### CASPER'S ADVANCED BY REX COLE

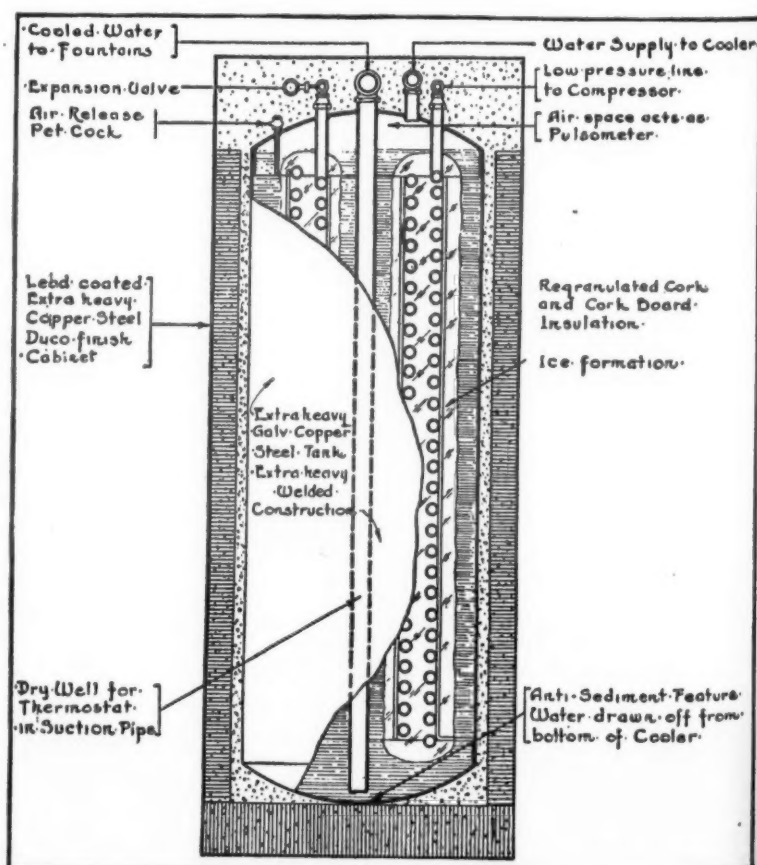
Harold C. Caspers, former apartment house specialist with Rex Cole, Inc., 265 Fourth Avenue, New York, distributor of General Electric refrigerators, has been promoted to the position of assistant manager, Apartment House Department. According to John J. Massimi, manager of the department, the need for the office has arisen due to the greatly expanded prospects for the 1930 apartment house market. The new assistant manager became associated with Rex Cole, Inc., as retail sales representative in June, 1927. In September, 1927, he became one of the first Manhattan sales directors. He joined the Apartment House Department in March, 1928.

### BANQUET PLANNED FOR ENAMELING MEN

Cleveland, Ohio—In connection with the annual meeting of the American Ceramic Society in Toronto, February 16-19, Robert A. Weaver, president of Ferro Enamel Supply Co., Cleveland, Ohio, will give a banquet in honor of enameling delegates at the convention. The banquet will be held on Monday evening, February 17, at the Canadian Military Institute in Toronto.

### LION CO. APPOINTED KELVINATOR DEALER

Toledo, Ohio—Lion Dry Goods Co., one of Toledo's largest department stores, has been appointed as Kelvinator dealer in this territory. L. S. Talbert, who has been manager of the retail radio sales department, will be in charge of the retail sales of the refrigeration department.



CUTAWAY view, showing construction of Spear ice water generator. The water from the city mains is introduced through the top of the tank under pressure, and is cooled as it passes down the surface of ice built on the coils. The water is then taken from the bottom of the cooler to prevent any accumulation of sediment there. The coils are of extra heavy copper steel tubing, and coils and tank are treated against corrosion. The direct expansion of the refrigerant in the coils builds up the ice formation, giving the highest possible efficiency. The system makes use of an expansion valve and does not need a charge of refrigerant except that which comes with the condensing unit.



## REFRIGERATOR SALES SHOW HEALTHY GAINS IN OMAHA TERRITORY

By Charles P. Rodman

Omaha, Nebr.—The refrigeration business here has shown great strides forward during the year just closed. This is true in regard to both mechanical and electric refrigeration. Large gains have been made, selling opposition has been broken down, the food preservation campaign proved a strong factor and aided the refrigerator and ice men. The housewives as a whole have reached the point where all acknowledge refrigeration is necessary for general good health. Some still quibble on price, but even that is no longer a deterrent to sales.

The Baker Ice Machine Company, J. L. Baker, president, has a large factory here, turning out ammonia ice machines, which range in size from one with an ice melting capacity of 500 lbs. to that of 100 tons per day. This company was organized in 1905 and at that time used one room of 50 x 100. Now the factory occupies a site of 80,000 square feet of floor space.

There are 160 employees in the plant at the present time, and 200 others are in the employ of the company as salesmen here and at Ft. Worth and Los Angeles, where branch distributing plants are maintained. This represents an increase in the personnel of 21 per cent during the year just closed. The increase in the output during 1929 was 41 per cent. The Baker company is now selling refrigerators in 34 countries. The biggest market has been developed with the Spanish speaking countries, which means South America.

An important change in some of the smaller models of the Baker Ice Machine Co. will be made for 1930. A more important change, which is coming soon, will add to the possibilities of mechanical refrigeration in places where it is now hardly known.

Electrolux has done well in Omaha and vicinity since July 1. This machine is sold in the Omaha territory by the Metropolitan Utilities Company, which provides Omaha with both gas and water. This company finds the five-cubic-foot box is the favorite in Omaha. Test meters installed by the company shows the monthly cost of operation to be \$1.50. A few private residences have cut this cost to 70 cents a month.

The Council Bluffs Gas Company sells the Electrolux in the Bluffs, and has met with great success since taking on this machine. That company reports the seven-foot box selling the best in that city. Monthly cost is \$2.00. Gas costs more in Council Bluffs than in Omaha.

Frigidaire, General Electric and Kelvinator all made good showings in 1929. Copeland entered the field here early in the year, but soon closed the Omaha branch, leaving the selling to one of the large furniture houses. Holmes sold probably forty machines and then faded out in this territory. The gain in the domestic machines for 1929 over 1928 is about 11 1/4 per cent, making the sales in the city approximately 1,945. In addition to this, 222 commercial jobs are reported for the year.

Figures obtainable for the last five years in Omaha show installations as follows:

1925	512
1926	1,176
1927	1,358
1928	1,751
1929	1,945

Total for five years.... 6,742

Omaha's present population of 248,000 would indicate there are possibly 62,000 homes in the city. At least 46,500 of these are wired. The number of machines now installed, thus, is about 14 1/2 per cent of the number possible.

A complete separate record of commercial jobs installed in Omaha cannot be secured except for 1929. The report shows 222 for that year. In this connection it might be well to say that Mr. Eichenlaub of Frigidaire, in charge of the Omaha district, carried off high honors in his company by showing a big gain for the year. General Electric, under the management of Mr. Nellor for the Storz company, also made a wonderful showing. This latter company has just added St. Joseph, Mo., to the large field in Nebraska and Iowa.

Both Frigidaire and General Electric will hold territorial meetings early in March.

The IcElect Corporation is the only electric refrigeration plant in Omaha. This company has been experimenting for two years and now announces that 1930 will see the organization of a selling force to handle the sales throughout all Omaha territory. IcElect reports 100 machines now in operation. This company has perfected all arrangements for handling commercial jobs during the coming year. A 1-h.p. and a 1 1/2-h.p. evaporator have been added to the list of those heretofore made. These are

intended for use in the smaller walk-in boxes for grocers and kindred lines of business.

The wholesale business of the various companies reached well over the 5,000 mark in the Omaha territory. Reports from two of the larger companies show that the farmers, where the power is available, are taking quite an interest in electric refrigeration. The small dairymen are also turning to electric refrigeration in this territory.

## DETROIT ENGINEERS WILL STUDY TESTING PROBLEMS

Detroit, Mich.—Testing and rating of refrigerators for both ice and mechanical refrigeration are the principal topics to be considered by the Detroit Section of the American Society of Refrigerating Engineers at its all-day and evening session, which will be held at the Masonic Temple February 3.

The morning session, which opens at 9:30 a. m., will be devoted to the discussion of testing and rating problems for ice cooled refrigerators. Papers at the afternoon meeting will take up uniform performance tests for mechanically cooled refrigerators, and preliminary outline of uniform performance rating factors and labeling. The topic at the evening session will be "Refrigerator Cabinet Design and Construction."

Charles C. Thomas, vice-president of the Detroit Section and cabinet engineer for Kelvinator-Leonard, is chairman of the meeting.

## SALES DEPARTMENT OF IOWA FRIGIDAIRE BRANCH EXPANDS

Des Moines, Iowa—Plans for a reorganization of the sales department of the local branch of Frigidaire are in the process of completion. The expansion program planned calls for the addition of a number of new men to the sales staff.

## FERRO MAKES CHANGES IN PERSONNEL

Cleveland, Ohio—Conrad W. Given has been removed from western Pennsylvania territory to the Eastern territorial division of the Ferro Enamel Supply Co. of Cleveland, Ohio, with headquarters in Philadelphia, Pa.

Frank Anthony, formerly with Bettinger Enamel Corp., Waltham, Mass., has been added to service staff and H. S. Scherlacher has been added to the company's engineering staff.

## NEW TOOLS AVAILABLE FOR INSTALLATION MEN

Imperial Brass Manufacturing Co., 565 So. Racine Ave., Chicago, announce two new tools to aid in making better jobs of tubing installations. The first of these is a refacing tool for refacing the seats of S. A. E. couplings. Couplings that have scratched or marred seats need no longer be thrown away. For, with this tool, the seat can be refaced in a few seconds to make a tight,



leak-proof joint. This tool takes five different sizes of couplings, ranging from 1/4" to 1/2".

The second new tool is a tube bender set, which makes it a simple matter to bend tubing to any desired degree without flattening. The tool consists of a set of six steel spring wire coils to take tubing ranging in size from 1/4" to 5/8". The coils are merely slipped over the end of the tubing and slid along to the point where the bend is to be made. Then both coil and tubing are bent to any angle desired.

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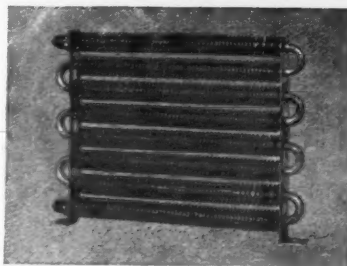
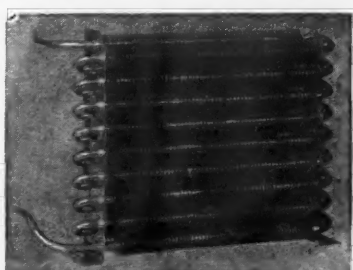
# McCord BUILT CONDENSERS

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McCord condensers have always proved highly efficient under any and all conditions. Their use as standard equipment on such well known refrigerators as Westinghouse, Kelvinator and Copeland, tells a story of dependability and satisfaction that is hard to equal.

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Tin and solder are evenly and uniformly applied with a minimum of thickness—yet make a perfect contact between fin and tube. Made of one continuous tube, McCord condensers cool quicker, better and at less cost to the user.

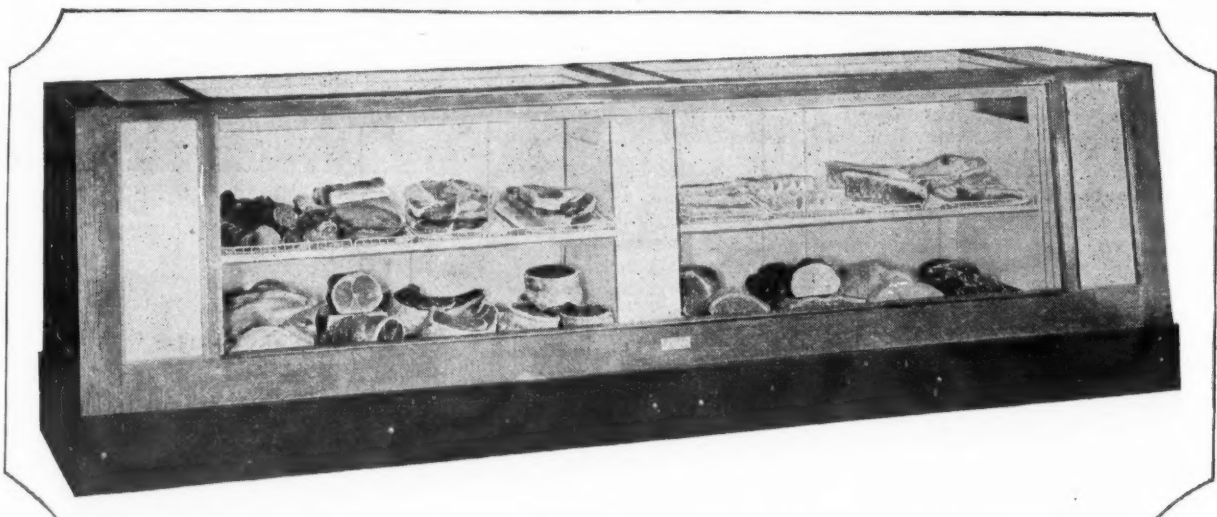


### Standardized Models

McCord has standardized on a few models covering the majority of condenser requirements. McCord offers the facilities of their condenser engineering department in the designing of practical and efficient condensers. A new catalog containing valuable charts and engineering information free on request.

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RADIATOR & MFG. Co.  
DETROIT MICH.

## McCray Adds Three Heavy Duty Cases



THREE new heavy duty display case refrigerators, in lengths of eight, ten and twelve feet, respectively, designed exclusively for mechanical refrigeration, have been announced by McCray Refrigerator Sales Corp., Kendallville, Ind. Walls of the new models are 6 inches thick, insulated with 4 inches of cork-board sealed with hydrolene. The front and top are provided with three courses of plate glass.

Exterior wood parts are of quarter-sawn oak, and there are white porcelain panels in the front and top of the coil space located at each end. These cases have a 9-inch base of olive shade porcelain.

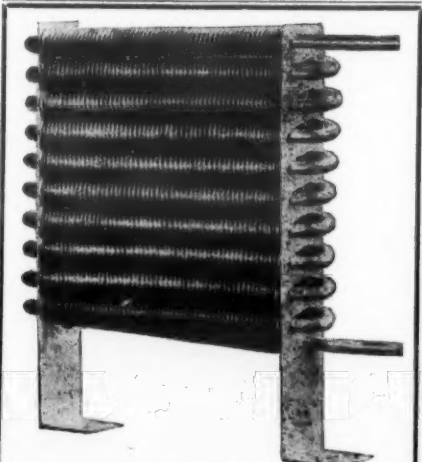
Interiors are finished in snow-white enamel. Baffles are provided for each

coil and coil space of 9 1/4 inches at the ends have plug doors in the rear. Each model has one tier of heavy metal bar shelving and a metal floor rack. The twelve-foot model has additional coil space in the center of the case.

The height of these models is 44 inches and depth is 36 inches. The eight-foot model No. 3108 has 34.5 cu. ft. of storage space and 19.34 sq. ft. of shelf space,

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while the ten-foot model, No. 3110, has 44.38 cu. ft. contents and 25.6 sq. ft. of shelf space. The twelve-foot model, No. 3112, has 56.3 cu. ft. contents and 30.9 sq. ft. of shelf space.



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